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EDITED BY

J. RIDDLE GOFFE, PH.B., M.D.

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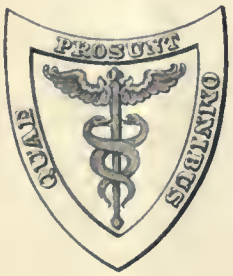

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ORIGINAL ARTICLES.

THE REPORT OF THE AMERICAN PEDIATRIC SOCIETY'S COLLECTIVE INVESTIGATION INTO THE USE OF ANTITOXIN IN THE TREATMENT OF DIPHTHERIA IN PRIVATE PRACTICE.[1]

THIS subject was chosen by the officers of the Society for its eighth annual meeting, with the belief that a large amount of valuable experience not otherwise available, might in this way be reached and collated. It was also believed that a more trustworthy estimate of the value of the serum treatment of diphtheria might thus be obtained than by statistics taken from hospital practice. There are very few hospitals in America that receive diphtheria patients, and the conditions under which patients are admitted to hospitals and the surroundings while there, are so different from those of private practice, that the measure of success in hospital cases cannot be taken as an index of the results which have been obtained upon this side of the Atlantic with the new treatment.

In order, therefore, to obtain an expression of opinion from American physicians as to the serum treatment, after what had been, with most of them, their first year's experience, a circular letter was prepared and issued by the Committee early in April. This was distributed through the members of the Society as widely as could be done during the time allowed. An attempt was made to reach as many physicians as possible who had had experience with the remedy.

The first surprise of the Committee was in learning how very widely the serum treatment had been employed, especially in the Eastern and mid-Western States. With more time, the number of cases collected might easily have been doubled and perhaps trebled; but enough reports have come in to enable one to see what opinion was held on the 1st of May, 1896, by American physicians who have used this remedy.

The circular letter asked for information upon the following points: Age; previous condition; duration of disease when the first injection was made; the number of injections; the extent of the membrane—tonsils, nose, pharynx, and larynx; whether or not the diagnosis was confirmed by culture; complications or sequelæ, viz., pneumonia, nephritis, sepsis, paralysis; the result; and remarks, including other treatment employed, the preparation of antitoxin used, and general impression drawn from the cases.

Reports were returned from 615 different physicians, with 3628 cases. Of these, 244 cases have been excluded from our statistical tables. These were cases in which the disease was said to have been confined to the tonsils and the diagnosis not confirmed by culture, and therefore open to question. A few cases were reported in such doubtful terms as to leave the diagnosis uncertain. The figures herewith given are therefore made up from cases in which the diagnosis was confirmed by culture (embracing about two-thirds of the whole number) and others giving pretty clear evidence of diphtheria, either in the fact that they had been contracted from other undoubted cases, or where the membrane had invaded other parts besides the tonsils, such as the palate, pharynx, nose, or larynx. It is possible that among the latter we have admitted some streptococcus cases, but the number of such is certainly very small.

There are left then of these cases, 3384 for analysis. These have been observed in the practice of 613 physicians from 114 cities and towns, in 15 different States, the District of Columbia, and the Dominion of Canada.

In the general opinion of the reporters the type of diphtheria during the past year has not differed materially from that seen in previous years, so that it has been average diphtheria which has been treated. If there is any difference in the severity of the cases included in these reports from those of average diphtheria, it is that they embrace a rather larger proportion of very bad cases than are usually brought together in statistics. The cases, according to the extent of the membrane, are grouped as follows: In 593 the tonsils alone were involved. In 1397 the tonsils and pharynx, the tonsils and nose, the pharynx and nose, or all three were affected. In 1256 cases the larynx was affected either alone or with the tonsils, pharynx, and nose, one or all. In many instances,

[1] Reported at the Eighth Annual Meeting held at Montreal, Canada, May 26, 1896.

the statement is made by the reporters that the serum was resorted to only when the condition of the patient had become alarmingly worse under ordinary methods of treatment. This is shown by the unusually large number of cases in which injections were made late in the disease. Again, many physicians being as yet in some dread of the unfavorable effects of the serum have hesitated to use it in mild cases and have given it only in those which from the onset gave evidence of being of a severe type. The expense of the serum has unquestionably deterred many from employing it in mild cases. These facts, it is believed, will more than outweigh the bias of any antitoxin enthusiasts by including many mild cases which would have recovered under any treatment. It will, however, be remembered, that tonsillar cases not confirmed by culture have not been included.

Only two reports embracing a series of over one hundred cases have been received, most of the observers having sent in from five to twenty cases, although there are many reports of single cases, particularly of single fatal ones.

In addition to this material which has come in response to the circular, there have been placed at the disposal of the Committee, by the courtesy of Dr. H. M. Biggs, 942 cases treated in their homes in the tenements of New York. Of these, 856 were injected by the corps of inspectors of the New York Health Board, upon the request of the attending physician, and 86 others were treated by physicians receiving free antitoxin from the Health Board. In the first group the diagnosis of diphtheria was confirmed by culture in every case, and in all of the latter except 26; in these the diagnosis rested upon extensive membranous deposits or laryngeal invasion. The cases of the New York Health Board were of a more than ordinarily severe type, 485, or more than fifty per cent. of these being reported as being in bad condition at the time of injection; to mild cases the inspectors were not often called. Further, an unusually large number of them (thirty-eight per cent.) were injected on or after the fourth day of the disease. In 182 of these cases only the tonsils were affected; in 466 the tonsils with the pharynx or nose, the pharynx and nose, or all three; in 294 the larynx was invaded either with or without disease of the tonsils, nose, or pharynx.

Through the courtesy of Dr. Biggs the committee is able to include also a partial report upon 1468 cases from Chicago, treated in their homes in that city by a corps of inspectors of the Health Department. It was the custom in Chicago to send an inspector to every tenement-house case reported, and to administer the serum unless it was refused by the parents. These cases were therefore treated much earlier and the results were correspondingly better than were obtained in New York, although the serum used was the same in both cities, viz., that of the New York Health Board.

THE RESULT AS INFLUENCED BY THE TIME OF INJECTION.

In Table I are given the results obtained in these three different groups of cases, classified according to the day on which they received the first injection of serum antitoxin.

TABLE I.—DAY OF INJECTION AND RESULT.

	Injected on 1st Day.			Injected on 2nd Day.			Injected on 3rd Day.			Injected on 4th Day.			Injected on or after 5th Day.			Day of Injection Unknown.			Totals.		
	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.
The Committee's Report,	764	38	4.9	1065	89	8.3	620	79	12.7	336	77	22.9	390	152	38.9	215	15	7.0	3384	450	13.0
New York Health Board,	126	11	8.7	215	26	12.0	228	37	16.6	153	32	20.9	203	59	29.0	17	4	23.5	942	169	17.8
Chicago Health Board,	106	0	0	336	5	1.5	660	18	2.7	269	38	14.1	97	33	34.0	0	0	0	1468	94	6.4
Totals, - - -	996	49	4.9	1616	120	7.4	1508	134	8.8	758	147	20.7	690	244	35.3	232	19	8.2	5794	713	12.3

The grand total gives 5794 cases, with 713 deaths, or a mortality of 12.3 per cent., including every case returned; but the reports show that 218 cases were moribund at the time of injection or died within twenty-four hours of the first injection. Should these be excluded there would remain 5576 cases (in which the serum may be said to have had a chance) with a mortality of 8.8 per cent.

Of the 4120 cases injected during the first

three days there were 303 deaths—a mortality of 7.3 per cent., including every case returned. If from these we deduct the cases which were moribund at the time of injection, or which died within twenty-four hours, we have 4013 cases, with a mortality of 4.8 per cent. Behring's original claim, that if cases were injected on the first or second day the mortality would not be 5 per cent., is more than substantiated by these figures. The good results obtained in third-day injections were a great surprise to your Committee. But after three days have passed the mortality rises rapidly, and does not differ materially from ordinary diphtheria statistics. Our figures emphasize the statement so often made, that relatively little benefit is seen from antitoxin after three days; however, it must be said that striking improvement has in some cases been seen even when the serum has been injected as late as the fifth or sixth day. The duration of the disease, therefore, is no contraindication to its use.

THE INFLUENCE OF BACTERIOLOGICAL DIAGNOSIS UPON THE STATISTICS.

This is shown in Table II.

TABLE II.—DIAGNOSIS CONFIRMED BY BACTERIOLOGICAL EXAMINATION.

	Cases.	Deaths.	Mortality.
Committee's Report,	2453	302	12.3 per cent.
New York Board of Health,	916	160	16.9 "
Chicago " "	1468	94	6.4 "
Totals, - -	4837	556	11.4 "
(Excluding 145 cases which were moribund or which died in twenty-four hours), - - -			8.7 "

DIAGNOSIS FROM CLINICAL EVIDENCE ONLY.

	Cases.	Deaths.	Mortality.
Committee's Report,	931	148	15.7 "
New York Board of Health,	26	9	34.6 "
Totals, - -	957	157	16.3 "
(Excluding 72 cases either moribund or dying in twenty-four hours), - - - - - -			9.6 "

In the cases in which the diagnosis was not confirmed by a bacteriological examination the mortality is thus 5 per cent. higher than in the bacteriological cases. The difference is to be explained by two facts: first, as already stated, that we have excluded from our reports all tonsillar cases (and hence most of the very mild ones) not confirmed by bacteriological examinations; and secondly, by the fact that this group of cases comprises those treated in the country where physicians have hesitated to use antitoxin unless the type of the disease was a grave one, and where also a large proportion of the injections were made later than in the cities. However, should we leave out the moribund cases, the mortality is but 9.5 per cent., which differs but slightly from the cases confirmed by bacteriological diagnosis.

In our subsequent statistics we shall consider together all the cases bacteriologically confirmed and otherwise, as the statistics are not materially altered by this grouping.

THE RESULTS AS MODIFIED BY THE AGE OF THE PATIENTS.

Unfortunately the ages have not been furnished in the report of the Chicago cases, and we have therefore only the cases reported to the Committee and those from the New York Board of Health for analysis. In Table III is shown the mortality of the different ages grouped separately.

The highest mortality is seen as in all reports to be in the cases under two years, but including all those returned even those that were moribund when injected, the death rate was but 23.3 per cent. (21.7 per cent. of the Committee's cases), while if we exclude cases moribund when injected or dying within the first twenty-four hours, it falls to 19.2 per cent.

After the second year there is noticed a steady

TABLE III.—AGE AND RESULT OF TREATMENT.

	0 to 2 Years.			2 to 5 Years.			5 to 10 Years.			10 to 15 Years.			15 to 20 Years.			20 Years and Over.		
	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.	Cases.	Deaths.	Mortality per cent.
Committee's Report, - - - -	631	137	21.7	1276	175	13.7	883	108	12.2	276	19	6.8	112	4	3.6	214	9	4.2
New York Health Board, - - - -	236	65	27.5	466	83	17.8	178	21	11.2	29	0	0	11	0	0	22	0	0
Totals, - - - - - - -	867	202	23.3	1742	258	14.7	1061	129	12.1	305	19	6.2	123	4	3.2	236	9	3.8
Moribund, - - - - - - -	43			59			59			9			0			4		
Mortality Excluding Moribund Cases, -			19.2			13.3			8.7			3.3			3.2			2.1

decline in mortality up to adult life. In many of the reports previously published the statement has been made that no striking improvement in results was observed in adults cases treated by the serum. Our figures strongly contradict this opinion. Of 359 cases over fifteen years old, which were returned, there were but thirteen deaths. That the reader may judge for himself how far antitoxin is to be held responsible for the result, a brief summary of these thirteen cases is appended.

CASE I.—Fifteen years old; injected on the fourth day; membrane covering tonsils and pharynx; profoundly septic, sinking rapidly when injected; died in two hours. "My only death in seventeen cases." (Jones, Gloucester, Mass.)]

CASE II.—Forty-four years old; injected on the fourth day; membrane on the tonsils and pharynx; in bad condition; died three hours after injection. The tonsils had been previously incised, the early diagnosis having been quinsy.

CASE III.—Thirty-one years old; injected on the sixth day; membrane on the tonsils, nose, pharynx, and larynx; intubation; sepsis; in bad condition; lived eight hours after injection.

CASE IV.—Thirty-five years old; injected on the fifth day; membrane on the pharynx and nose (?); in bad condition; septic; died in twelve hours.

CASE V.—Sixty years old; in bad condition; had serious mitral regurgitation; injected on the fourth day; membrane covering tonsils, pharynx, and larynx; died from heart failure on following day.

CASE VI.—Sixty years old; "kidney trouble for years;" injected on the third day; very extensive membrane, covering tonsils, pharynx, and nose; profound sepsis; in bad condition; died suddenly on the day after injection.

CASE VII.—Seventeen years old; in bad condition; convalescing from measles; enormous adenopathy; profound sepsis; exceedingly high temperature; membrane covering tonsils and nose; injected at the end of forty-eight hours; three injections, temporary improvement after each one; duration of life not given.

CASE VIII.—Fifteen years old; in bad condition; injected on the ninth day; membrane covering tonsils, nose, pharynx, and larynx; no operation; enormous infiltration of the tissues of the neck; nephritis; sepsis; lived four days and died of sepsis.

CASE IX.—Twenty years old; injected on the third day; membrane upon the tonsils, nose, pharynx, and larynx; "a stubborn patient, who got up before he was allowed, and died suddenly after it."

CASE X.—Twenty-five years old; injected on the fifth day; membrane covering both tonsils, entire pharynx, and completely occluding nose; nephritis and sepsis; throat cleared off entirely; died suddenly on the fourteenth day from cardiac paralysis.

CASE XI.—Nineteen years old; injected on the fifth day; membrane upon the tonsils and pharynx; profound sepsis; duration of life unknown.

CASE XII.—Twenty-two years old; injected on the fourth day; membrane on the tonsils and gums; sepsis; died on the sixth day.

CASE XIII.—The well-known Brooklyn case, reported in 1895. Girl, sixteen years old, who died suddenly, ten minutes after injection.

Such are the adult cases, which antitoxin failed to cure. Four of them were moribund at the time of injection, no one of them living over twelve hours. Two, both sixty years old, were already crippled by previous organic disease, one of the heart, and the other of the kidneys. In the measles case there was undoubted evidence of streptococcus septicemia. Only two of the cases were injected as early as the third day; three of them on the fifth day, and one on the ninth day. Omitting the four moribund cases, the mortality of 355 adult cases treated with the serum is 2.5 per cent.

PARALYSIS.

Reliable data upon this point and those hereafter to be mentioned are to be had only from the 3384 reports returned to the Committee. Of these, paralytic sequelæ appeared in 328 cases—9.7 per cent. Of the 2934 cases which recovered, paralysis was present in 276, or 9.4 per cent. Of the 450 cases which died, paralysis was noted in 52, or 11.4 per cent.

The variety of the paralysis and the date of injection is shown in Table IV.

Observations of some of the individual cases are interesting, particularly those of cardiac paralysis. It is twice stated that the child had gotten up and walked out of the house, where it was found dead. Twice death occurred after sitting up suddenly; once, on jumping from one bed into another. One patient of twenty years got up, contrary to orders, and died soon afterward. Another patient was apparently well, until he indulged in a large quantity of cake and candy, soon after which cardiac symptoms developed, and he died shortly. One case was that of a woman, sixty years old, who had serious organic cardiac disease.

It is difficult from these statistics to state what protective power the serum may have over the nerve-cells and fibers. Apparently this is not great, unless the injections are made early in the disease, and even then in severe cases the amount of damage done to these tissues in twenty-four hours may be very great, even irreparable. Time

is not the only element in estimating the effect of the diphtheria toxins.

Great discrepancy exists in the statements made regarding the frequency of paralytic sequelæ after diphtheria. In a series of 1000 cases reported by Lennox Browne, paralytic sequelæ were present in 14 per cent. In 2448 cases by Sanné, paralysis was noted in 11 per cent. In the series of cases here reported, the difference is slightly in favor of the antitoxin treatment, but paralysis is certainly frequent enough to show how extremely susceptible the nervous elements are to the diphtheria toxins. One thing is quite striking from a study of these cases, and that is the proportion that have died from late cardiac paralysis. That very many of them would undoubtedly have succumbed earlier in the disease from suffocation (laryngeal cases) or diphtheritic toxemia, had the serum not been employed, is beyond question. Although the serum is able to rescue even many such desperate cases, it cannot overcome the effects of the toxins upon the cells, which have occurred before it was injected.

SEPSIS.

Sepsis is stated to have been present in 362 of the 3384 cases, or 10.7 per cent. It was present in 145, or 33 per cent. of the fatal cases. Some explanation is necessary for a correct appreciation of these figures. The majority of the reporters, it is plain from their remarks, have not distinguished between diphtheritic toxemia and streptococcus sepsis. The former is certainly meant in the great majority of the cases. There is a very small proportion in which there is evidence of streptococcus sepsis. The six cases complicating measles and the five complicating scarlet fever, however, should possibly be included among this list.

NEPHRITIS.

The statements on this point are quite unsatisfactory. The reports state that nephritis was present 350 times, or in ten per cent. of the cases. On the one hand, it must be stated that the diagnosis of nephritis rests, in many cases, simply upon the presence of albumin in the urine; but, on the other hand, it is true that in a large number of the cases—more than half—no examination of the urine is recorded as having been made, so that it is impossible to state with anything like approximate accuracy, the frequency of nephritis in these cases. Of the 450 fatal cases, the presence of nephritis is mentioned without qualification or explanation in thirty-nine cases, these being usually put down also as septic, dying in the acute stage of the disease. There are fifteen fatal cases, however, in which the renal disease was stated as the cause of death. In no less than nine the nephritis occurred late in the disease, usually during the second or third week. In these fifteen cases the evidence of severe nephritis was conclusive, such symptoms being present as dropsy, suppression of urine, with coma or convulsions.

BRONCHO-PNEUMONIA.

Broncho-pneumonia is stated to have been present in 193 of the 3384 cases, or 5.9 per cent., a remarkably small proportion when compared with hospital statistics. Among the patients that

TABLE IV.—VARIETY OF PARALYSIS AND THE DAY OF INJECTION.

	Cases.	Day of Injection.					
		1st Day.	2d Day.	3d Day.	4th Day.	5th Day.	Unknown.
Recovery Cases.							
Paralysis mentioned (variety not specified),	132	8	32	32	19	16	23
Throat only (aphonia, nasal voice or regurgitation),	114	16	21	25	11	16	24
Extremities,	14	3	5	2	—	3	1
Ocular,	11	—	4	3	1	2	1
General (multitude neuritis),	4	—	1	2	1	—	—
Sterno-mastoid,	1	—	1	—	—	—	—
Fatal Cases.							
Paralysis mentioned (variety not specified),	9	—	3	2	1	2	1
[1] Cardiac, late after throat clear (in 4 of them throat also),	32	1	2	8	9	8	4
Throat only,	6	—	2	—	—	—	4
General late,	4	—	1	—	1	2	—
Muscles of Respiration,	1	—	1	—	—	—	—
Totals,	328	28	73	76	43	49	58

[1] Cases of heart failure occurring at the height of the disease have not been included here; although they are mentioned among the cases of cardiac paralysis in the table of fatal cases.

recovered, broncho-pneumonia was noted 114 times, or in 3.8 per cent.; among the fatal cases, 79 times, or in 17.5 per cent.; but in only about one-half of these was the pneumonia the cause of death. Of these, 37 were laryngeal cases, operated upon late; 10 were septic cases, and the pulmonary disease was coincident with the height of the diphtheritic process. In 7, pneumonia was independent of both the above conditions, occurring late in the disease in all but two.

LARYNGEAL CASES.

Of the 3384 cases reported to the Committee, larynx is stated to have been involved in 1256 cases or 37.5 per cent. This proportion is somewhat higher than is usual, and is partly explained by the fact that several physicians have sent in the reports only of their laryngeal cases. These laryngeal cases occurred in the practice of 379 physicians.

In 691, or a little more than one-half the number, no operation was done, and in this group there were 128 deaths. In 48 of them laryngeal obstruction was responsible for the fatal issue, operation being refused by the parents, or no reason for its being neglected having been given. In the eighty remaining fatal cases the patients died of other complications, and not from the laryngeal disease.

In the 563 cases, therefore, or 16.9 per cent. of the whole number, there was clinical evidence that the larynx was involved, and yet recovery took place without operation. In many of these cases the symptoms of stenosis were severe, and yet disappeared after injection without intubation. No one feature of the cases of diphtheria treated by antitoxin has excited more surprise among the physicians who have reported them, than the prompt arrest, by the timely administration of the serum, of membrane which was rapidly spreading downward below the larynx. Such expressions abound in the reports as "wonderful," "marvelous," "prepared to do intubation, but at my next visit the patient was so much better it was unnecessary," "in all my experience with diphtheria have never seen anything like it before," "no unprejudiced mind could see such effects and not be convinced of the value of the serum," etc.

In establishing the value of the serum, nothing has been so convincing as the ability of antitoxin, properly administered, to check the rapid spreading of membrane downward in the respiratory tract, as is attested by the observations of more than 350 physicians who have sent in reports.

Turning now to the operative cases we find the same remarkable effects of the antitoxin noticeable. Operations were done in 565 cases, or in 16.7 per cent. of the entire number reported. Intubation was performed 533 times with 138 deaths, or a mortality of 25.9 per cent. In the above are included nine cases in which a secondary tracheotomy was done, with seven deaths. In 32 tracheotomy only was done with 12 deaths, a mortality of 37.4 per cent. Of the 565 operative cases, 66 were either moribund at the time of operation, or died within twenty-four hours after injection. Should these be deducted, there remain 499 cases operated upon by intubation or tracheotomy, with 84 deaths, a mortality of 16.9 per cent.

Of the 2819 cases not operated upon, there were 312 deaths, a mortality of 11.3 per cent. Deducting the moribund cases, or those dying within twenty-four hours after injection, the total mortality of all non-operative cases was 9.12 per cent.

Let us compare the results of intubation in cases in which the serum was used, with those obtained with this operation before the serum was introduced. Of 5546 intubation cases in the practice of 242 physicians, collected by McNaughton and Maddren (1892) the mortality was 69.5 per cent. Since that time statistics have improved materially by the general use (in and about New York, at least) of calomel fumigations. With this addition, the best results published (those of Brown) showed in 279 cases a mortality of 51.6 per cent.

Let us put beside the cases of McNaughton and Maddren the 533 intubations with antitoxin, with 25.9 per cent. mortality. With Brown's personal cases let us compare those of the fourteen observers who have reported to the Committee ten or more intubation operations in cases injected with serum. These comprise 280 cases with 65 deaths, a mortality of 23.2 per cent. In both comparisons the mortality without the serum is more than twice as great as in the cases in which serum was used.

The reports of some individual observers concerning intubation with the serum are interesting:

Neff, New York: 27 operations, with 27 recoveries.

Rosenthal, Philadelphia: 18 operations, with 16 recoveries.

Booker, Baltimore: 17 operations, with 17 recoveries, including one aged ten months, and one seven and a half months.

Seward, New York: 8 operations, with 8 recoveries.

McNaughton, Brooklyn: "In my last 72 operations without serum, mortality 66.6 per cent.; in my first 72 operations with serum, mortality 33.3 per cent."

O'Dwyer, New York: "In my last one hundred intubations, first 70, without serum, mortality 73 per cent.; last 30, with serum, mortality 33.3 per cent.

But even these figures do not adequately express the benefit of antitoxin in laryngeal cases. Witness the fact that over one-half the laryngeal cases did not require operation at all. Formerly ten per cent. of recoveries was the record for laryngeal cases not operated upon. Surely, if it does nothing else, the serum saves at least double the number of cases of laryngeal diphtheria that has been saved by any other method of treatment.

The great preponderance of intubation over tracheotomy operations shows how much more highly the profession in this country esteems the former operation.

A STUDY OF THE FATAL CASES.

Of the 450 fatal cases in the Committee's Report, 229, or one-half, received their first injection of the serum on or after the fourth day of the disease, and 152, or over one-third of these, on or after the fifth day.

There were 58 cases in which it was stated that the child was moribund at the time of injection, the serum being administered without the slightest expectation of benefit, but at the earnest solicitation of the parents.

There remain 350 cases in which the cause of death could be accurately determined by the reports. These died from the following causes, the most important cause being placed first:

Sepsis (*including diphtheritic toxemia*) was the cause of death in 105 cases; of which sixteen had nephritis, four were intubated or tracheotomized, two were laryngeal cases not operated upon, four had paralysis, one had pneumonia, and in one the fatal sepsis was attributed to a traumatic condition of the left knee.

Cardiac paralysis was the cause of death in 53 cases. Under this head are included cases of sudden heart failure occurring at the height of the disease (twenty-one in number) as well as those more commonly designated as heart paralysis, where death occurred suddenly after the throat cleared off. Of the latter there were thirty-two examples; four of these cases had throat paralysis, nineteen were septic, eight had nephritis, five were intubated, and one tracheotomized.

Broncho-pneumonia was put down as the cause of death in 54 cases. In 37 of these it followed laryngeal diphtheria; of these 22 were intubated, and four tracheotomized; two had nephritis; nine were septic. Broncho-pneumonia and sepsis was the cause of death in 10 cases, of which three had nephritis and one general paralysis. Broncho-pneumonia caused death in seven cases, apart from sepsis or laryngeal diphtheria; of these only one had nephritis; one died from heart failure; and in five pneumonia came on late in the disease.

Laryngeal diphtheria without operation caused death in 48 cases. In some of these the operation was refused by the parent, in others it was neglected by the physician, the patients dying of asphyxia; 3 of these cases had nephritis, 4 were septic, 2 had pneumonia, and 1 had sepsis and nephritis.

Diphtheritic tracheitis or bronchitis caused death in 11 cases; all of these were intubated, and in 2 there was evidence of the existence of membrane in the bronchi before operation. There were 33 other cases in which death followed laryngeal diphtheria without the supervention of pneumonia. It is highly probable that in some of these death was due to membranous tracheitis or bronchitis. All of them were operated upon; 10 were septic, 2 had paralysis, and 1 had nephritis.

Sudden obstruction of the intubation tube was the cause of death in 3 other laryngeal cases.

The tube was coughed up in 3 cases, fatal asphyxia occurring before the physician could be summoned.

Died on the table during tracheotomy, 1 case.

Nephritis was the cause of death in 15 cases; 7 of these were septic, and 3 had been intubated.

General Paralysis was the cause of death in 5 cases; in all probably the pneumogastric was involved.

Paralysis of the respiratory muscles produced death in 1 case, 1 of laryngeal diphtheria, which was intubated, and was complicated by broncho-pneumonia.

Measles associated with diphtheria produced death in six cases; 5 of these were laryngeal and were intubated; in 2 there was pneumonia, and in 2 sepsis. Diphtheria developed during the height of the measles, or immediately followed it.

Scarlet fever with diphtheria was the cause of death in 6 cases; in 3 of these there was broncho-pneumonia, nephritis, and sepsis; in 2 scarlet fever preceded diphtheria, and in 1 of these there was sepsis with gangrene of the tonsils. In

the sixth case the patient died of scarlet fever, which developed during convalescence from the diphtheria.

Gangrene of the cervical glands or cellular tissue of the neck was the cause of death in 2 cases associated with profound general sepsis.

Endocarditis caused death in 1 case, nineteen days after the diphtheria.

Diphtheritic inflammation of the tracheal wound with sepsis caused death in 1 case.

General tuberculosis, five weeks after diphtheria, was assigned as the cause of death in 1 case.

Exhaustion was the cause of death in 3 cases, 1 a protracted case; another complicated by pneumonia and sepsis; 1 by nephritis.

Convulsions was the cause of death in 3 cases apart from disease of the kidneys. In 1, the well-known Brooklyn case, the girl died ten minutes after the injection, in another, twenty-four hours after injection, in the third, the particulars were not given.

Meningitis was assigned as the cause of death in 1 case.

THE KIND OF ANTITOXIN USED.

They are given in the order of frequency with which they have been used. First, the serum prepared by the New York Board of Health; second, Behring's; third, Gibier's;[1] fourth, Mulford's; fifth, Aronson's; sixth, Roux's. In addition a large number of cases are reported as having been treated by the serum prepared by the health boards of different cities—Brooklyn, Newark, Rochester, Pittsburg, etc. The largest number of cases have been treated by the serum prepared by the New York Health Board, a very large number by Behring's serum, all others being relatively in small numbers.

Dosage and number of injections. In the great majority of cases but one injection is reported. In very severe ones two and three have been given. The largest amount is in a case by Weimer (Chicago) who gave eighteen injections of Behring's serum to a laryngeal case in a child thirteen years old. Another instance of ten injections is reported with no unfavorable symptoms.

As a rule the dosage has been smaller in antitoxin units than is now considered advisable, particularly in many of the laryngeal cases and others injected later than the second day.

[1] It is worthy of note that in the tests made by the State Board of Health of Massachusetts, published under date of April 6, 1896, this serum was found far below the standard as labeled upon the bottle; thus a package marked to contain 2500 units, by test was found to contain less than 700. All the other varieties of serum tested were found essentially up to the standard.

CASES INJECTED REASONABLY EARLY (DURING THE FIRST THREE DAYS) IN WHICH ANTITOXIN IS SAID TO HAVE PRODUCED NO EFFECT, THE DISEASE ENDING FATALLY.

These cases are nineteen in number. Brief reports are introduced that the reader may judge to what degree they may be regarded as a test of the serum treatment. In our statistical tables all of them have been included among the fatal cases.

In Cases I and II the cultures were reported negative. Case I, by Gallagher, New York: Child, eighteen months old; septic; although no eruption was present, the reporter was "inclined, on reflection, to regard this case as one of scarlatinal sore throat."

CASE II, by Potter, Buffalo: Male, fourteen months old; two cultures made, but no Loeffler bacilli found; membrane in the nose and pharynx. Injected on the third day, one dose of Behring's serum No. 1. No improvement; death from sepsis. "Probably pseudo-diphtheria" (I. H. P.).

In Cases III to IX no cultures were made.

CASE III, by Tefft, New Rochelle: Seven years old; injected after eighteen hours' illness; two injections of Behring's No. 2 serum; membrane on the tonsils, pharynx, and nose; no effect observed from injections; patient dying on the third day.

CASE IV, by Tefft: Male, four years old; membrane on the tonsils and pharynx; injected after thirty-six hours' illness with Behring's No. 2; died on the third day; no noticeable effect from the injection.

CASE V, by Tefft: Six years old; membrane on the tonsils, nose, and pharynx; septic; injected after thirty-six hours' illness; three injections of Behring's No. 2. "Saw no effect from the injections, the disease going steadily on to a fatal termination."

CASE VI, by Cameron, Montreal: Two and a half years old; fifty hours ill; membrane on the tonsils, nose, and pharynx; septic; no improvement noticed, and child died twenty hours after injection.

CASE VII, by Baker, Newtonville, Mass.: three years old; laryngeal diphtheria; injected on the third day 10 cc. Roux's serum; cyanosis; intubation; temperature 103° F., and continued high until death in eighteen hours after operation; injections had no effect.

CASE VIII, by Anderson, New York: Three years old; injected after three hours' illness; membrane on the tonsils, nose, and pharynx; one injection New York Health Board antitoxin. "A case of malignant diphtheria, full duration twenty-four hours."

CASE IX., by McLain, Washington: Four years old; twelve hours sick; membrane on the pharynx and larynx; two injections; no operation; first injection early in the morning, the other early in

the afternoon; died the same day; no change in the condition; antitoxin had no apparent effect.

In Cases X to XIII diphtheria complicated measles, all reported by W. T. Alexander, New York. Disease confined to the larynx in all; in three the stenosis developed during measles, and in one while the patient was convalescing from measles; diagnosis confirmed by culture in every case, and in all intubation performed. Antitoxin seemed to have no effect, the cases going on to a fatal termination; all received their injections within twenty-four hours after the laryngeal symptoms appeared.

In three cases—XIV to XVI—the type of the disease was malignant from the outset.

CASE XIV., by Lloyd, Philadelphia: Fifteen months old; injected after thirty-six hours' illness; diagnosis confirmed by culture; membrane covered the tonsils, pharynx, nose, and larynx; intubation; sepsis; death on the fifth day. Although antitoxin was used as promptly as possible no perceptible effect noticed. One injection, Behring's No. 3, was given.

CASE XV, by Wert, Mount Vernon, N. Y.: Eighteen months old; injected on the third day; diagnosis confirmed by culture; membrane on the tonsils and pharynx. "Very intense type of the disease." Antitoxin could not be procured before the third day; Gibier's serum used. "Died suddenly in apparent convulsions about ten hours after injection; urine not examined; very little passed."

CASE XVI, by Ingraham: Six years old; membrane covered the tonsils, pharynx, and larynx; diagnosis confirmed by culture; pneumonia present; condition very bad; injected after two and a half days' illness; three injections of Behring's serum; no benefit noticed.

CASE XVII, by Johnson, Buffalo: Three years old; twelve hours ill; case septic from the start; membrane on the tonsils, pharynx, and larynx; diagnosis confirmed by culture. "Antitoxin apparently had very little effect."

CASE XVIII, by Baker, Newtonville, Mass.: Two and a half years old; twenty hours ill; disease confined to larynx; diagnosis confirmed by culture; one injection of Gibier's serum; intubation. "Was doing well a few minutes before death when child got up in its crib, changed color and died almost immediately." Death attributed to "sudden heart failure; found no obstruction of the tube."

CASE XIX, by Story, Washington: Five years old; in fair condition; thirty-six hours ill; diagnosis confirmed by culture; membrane on the tonsils, pharynx, and larynx; one injection of United States Marine Hospital antitoxin; injection produced no effect.

CASES IN WHICH UNFAVORABLE SYMPTOMS WERE, MIGHT HAVE BEEN, AND WERE BELIEVED TO HAVE BEEN, DUE TO ANTITOXIN INJECTIONS.

Only three cases reported to the Committee could by any possibility be placed in this category. All of the details furnished by the reporters are reproduced:

CASE I, by Kortright, Brooklyn: Sudden death in convulsions ten minutes after injection. This case is the already well-known Valentine case, occurring in Brooklyn in the spring of 1895. The principal points were as follows: A girl sixteen years old; in good condition; tonsillar diphtheria; diagnosis confirmed by culture; injected on the first day with 10 cc. Behring's serum; died in convulsions ten minutes later.

CASE II, by Kerley, New York: Fairly healthy boy, two and one-half years old; membrane on tonsils, pharynx, and in nose. Diagnosis confirmed by culture; injected on the morning of the fourth day with 10 cc. (1000 units) New York Health Board serum; temperature at time of injection 100.4° F.; no sepsis, and child apparently not very sick; urine free from albumin. Distinctly worse after injection; in ten hours temperature rose to 103° F.; urine albuminous; throat cleared off rapidly, but marked prostration and great anemia, with irregular fluctuating temperature continued and death from exhaustion with heart failure four days after the use of the serum.

CASE III, by Eynon, New York: Male, three and one-half years old; diagnosis confirmed by culture; two days ill; membrane on tonsils and in nose; two injections New York Health Board serum. "A rapid nephritis developed after the second injection causing coma, convulsions, and death twenty hours after the second injection." In response to an inquiry for further particulars the following was received: "The case seemed a mild one, but the injection was given one afternoon and repeated the following afternoon, about 1500 units in all. The urine up to that time had not been examined. About fourteen or sixteen hours after the second injection unfavorable symptoms began to develop pointing to infection of the kidneys. The urine was found to be loaded with albumin. My impression at the time was that the antitoxin either produced, hastened, or intensified nephritis, thereby causing the fatal termination."

In regard to the three fatal cases just cited, Case I is wholly unexplained. In Case II, the query arises, did this sudden change hinge upon the injection of the serum, or was it one of those unexplained abrupt changes for the worse in a case apparently progressing favorably, so often observed in diphtheria? As regards Case III, it will be seen from the letter that the evidence is not at all conclusive. All details available are given, and the reader may draw his own conclusions.

CLINICAL COMMENTS.

The following are selected from hundreds which have been received, and may be taken fairly to

represent the sentiments of the physicians who have sent in reports:

Dr. Douglas H. Stewart, New York, sends reports of four cases, all desperate ones, and all "presumably fatal under any other form of treatment." Very extensive membrane in all; larynx involved in three; in one neglected case, in a child three years old, *injected upon the fifth day*, the membrane covered the tonsils, nose, pharynx, and larynx. Broncho-pneumonia, nephritis, and sepsis all present. Temperature 107° F. at the time of the first injection. Prostration so great that he dared not attempt intubation. Believes that this case would certainly have been fatal in a few hours without antitoxin. Perfect recovery.

In another case, three years old, membrane first discovered in the left ear; next morning, seen upon the tonsils, and spread in a few hours over the pharynx into the larynx and trachea. Intubation necessary in a few hours; had never seen membrane spread so rapidly as in this child. Urine albuminous; membrane subsequently expelled from larynx and trachea in large casts, with profuse bloody expectoration. Complete recovery on the ninth day. The physician describes this as "the very worst case of diphtheria that has ever come under my notice." Five thousand four hundred antitoxin units were given in four injections. He remarks: "My experiences in the past have been so very unfortunate that the advocates of antiseptics or therapeusis were a constant surarise to me. It has been my fate to have the most desperate cases unloaded upon my shoulders. I had been forced into the belief that the profession was absolutely powerless in the presence of true diphtheria; have lost case after case with tube in the larynx and calomel fumigations at work. Previous to antitoxin, my only hope had become centered in nature and stimulants. In two years have not lost a single case, and surely I may be pardoned if I suffer from diphtheriaphobia in a subacute form, and use antitoxin sometimes unnecessarily."

Dr. L. L. Danforth, New York, states that during his twenty-two years of practice in New York he has seen many fatal cases of diphtheria, had used all kinds of remedies, mainly those of the homeopathic school, and while he had as much confidence in the latter as in anything else, he had seen so many deaths during the year past that he "hailed with delight the advent of antitoxin, and determined to use it." Reports five cases, all of a severe type. "The result in every case has been marvelous. I would not dare to treat a case now without antitoxin."

Dr. H. W. Berg, New York, reporting 14 cases, says: "I have not yet ceased to be surprised at the recovery of some of these cases, which, in the light of my former experience with diphtheria treated without antitoxin, seemed to be irretrievably lost."

Dr. George McNaughton, Brooklyn, reports 72 laryngeal cases, with 24 deaths; 67 of these were intubated, with 21 deaths. He states that he has kept no records of cases other than laryngeal ones, as these seemed the best test of the serum treatment. He believes that if the serum is used early very many cases will not need operation for the relief of stenosis. "I would urge the use of antitoxin in all cases of croup in any patient who has an exudation upon the pharynx; would not wait for bacteriological confirmation of diagnosis, for in so doing valuable time is lost." Has noticed that the tube is coughed up more frequently in injected cases, and believed this due to the fact that the swelling of the tissues subsides at an earlier date.

Dr. D. C. Moriarta, Saratoga, reporting 4 cases, says that the first was a malignant one and "I only used the remedy because I am Health Officer and was urged to do so, as the type of the disease was that from which I have seen recovery but once in eleven years." Boy five years old, four days ill when injected; great prostration, rapid breathing, and he was "practically gone." Nares filled and tonsils and pharynx covered; severe nasal hemorrhage; cervical glands greatly swollen; heart's action very frequent and feeble; child unable to lie down. Behring serum 20 cc. injected; in six hours evidently more comfortable; in eighteen hours decidedly improved; in twenty-four hours sitting up and feeling much better; in forty-eight hours all urgent symptoms gone and membrane loosening. Subsequently had nephritis which lasted six weeks, and multiple neuritis which persisted for three months, but ultimately recovered perfectly. "I send this report because it converted me. No unbiased person familiar with diphtheria could see such results as this and not feel there must be good in it."

Dr. F. M. Crandall, New York, sends report of a child seven years old. Membrane on the tonsils and in larynx, with croup for forty hours when antitoxin was injected and intubation done. Progress of the disease had been rapid; semi-stupor and eyes half open; very feeble rapid pulse; intense toxemia; general cyanosis. Both cyanosis and dyspnea persisted after intubation, showing clearly the presence of membrane below the tube. Case regarded as "absolutely hopeless." The first change was seen in the disappearance of the toxemia, with improvement in the pulse, clearness of the mind, etc.; later a change in the local condition; large masses of membrane were expelled from the larynx and trachea, necessitating frequent removals of the tube. Tube finally removed in a week with complete recovery.

Dr. Reynolds, Baltimore, mentions a case showing the danger of relying too implicitly upon the bacteriological diagnosis. Male, three years. Culture reported only staphylococcus and streptococcus, consequently injection delayed until the fifth day, when membrane covered tonsils, nose, and pharynx. Child died two days later. A sister subsequently contracted the disease, received an-

titoxin on the third day and recovered. The reporter would not wholly rely upon the culture test for diagnosis.

SUMMARY.

1. The report includes returns from 615 physicians. Of this number more than 600 have pronounced themselves as strongly in favor of the serum treatment, the great majority being enthusiastic in its advocacy.

2. The cases included have been drawn from localities widely separated from each other, so that any peculiarity of local conditions to which might be ascribed the favorable reports must be excluded.

3. The report includes the record of every case returned except those in which the evidence of diphtheria was clearly questionable. It will be noted that doubtful cases which recovered have been excluded, while doubtful cases which were fatal have been included.

4. No new cases of sudden death immediately after injection have been returned.

5. The number of cases injected reasonably early in which the serum appeared not to influence the progress of the disease was but 19, these being made up of 9 cases of somewhat doubtful diagnosis; 4 cases of diphtheria complicating measles, and 3 malignant cases in which the progress was so rapid that the cases had passed beyond any reasonable prospect of recovery before the serum was used. In two of these the serum was of uncertain strength and of doubtful value.

6. The number of cases in which the patients appeared to have been made worse by serum were three, and among these there is only one new case in which the result may fairly be attributed to the injection.

7. The general mortality in the 5794 cases reported was 12.3 per cent.; excluding the cases moribund at the time of injection or dying within twenty-four hours, it was 8.8 per cent.

8. The most striking improvement was seen in the cases injected during the first three days. Of 4120 such cases the mortality was 7.3 per cent.; excluding cases moribund at the time of injection or dying within twenty-four hours, it was 4.8 per cent.

9. The mortality of 1448 cases injected on or after the fourth day was 27 per cent.

10. The most convincing argument, and to the minds of the committee an absolutely unanswerable one, in favor of serumtherapy is found in the results obtained in the 1256 laryngeal cases (membranous croup). In one-half of these recovery took place without operation, in a large proportion of which the symptoms of stenosis were severe. Of the 533 cases in which intubation was performed the mortality was 25.9 per cent., or less than half as great as has ever been reported by any other method of treatment.

11. The proportion of cases of broncho-pneumonia—5.9 per cent.—is very small and in striking contrast to results published from hospital sources.

12. As against the two or three instances in which the serum is believed to have acted unfavorably upon the heart might be cited a large number in which there was a distinct improvement in the heart's action after the serum was injected.

13. There is very little, if any, evidence to show that nephritis was caused in any case by the injection of serum. The number of cases of genuine nephritis is remarkably small, the deaths from that source numbering but fifteen.

14. The effect of the serum on the nervous system is less marked than upon any other part of the body; paralytic sequelæ being recorded in 9.7 per cent. of the cases, the reports going to show that the protection afforded by the serum is not great unless injections are made very early.

The Committee feels that this has been such a responsible task that it has thought best to state the principle which has guided it in making up the returns. While it has endeavored to present the favorable results with judicial fairness, it has also tried to give equal or even greater prominence to cases unfavorable to antitoxin.

In conclusion the committee desires in behalf of the Society to express its thanks to members of the profession who have coöperated so actively in this investigation, and to Dr. A. R. Guerard for the preparation of the statistical tables.

(Signed)

L. EMMETT HOLT, M.D.,
W. P. NORTHRUP, M.D.,
JOSEPH O'DWYER, M.D.,
SAMUEL S. ADAMS, M. D.,
} Committee.

THE ACTION OF THE SOCIETY UPON THE REPORT.

At the close of its presentation, the Society voted to accept the report of the Committee and after a full discussion it was decided to embody its conclusions in the following resolutions:

1. *Dosage.* For a child over two years old, the dosage of antitoxin should be in all laryngeal cases with stenosis, and in all other severe cases, 1500 to 2000 units for the first injection, to be repeated in from eighteen to twenty-four hours if there is no improvement; a third dose after a sim-

ilar interval if necessary. For severe cases in children under two years, and for mild cases over that age the initial dose should be 1000 units, to be repeated as above if necessary; a second dose is not usually required. The dosage should always be estimated in antitoxin units and not of the amount of serum.

2. *Quality of Antitoxin.* The most concentrated strength of an absolutely reliable preparation.

3. *Time of administration.* Antitoxin should be administered as early as possible on a clinical diagnosis, not waiting for a bacteriological culture. However late the first observation is made, an injection should be given unless the progress of the case is favorable and satisfactory.

The Committee was appointed to continue its work for another year and was requested to issue another circular asking for the further coöperation of the profession, this circular to be sent out as soon as possible in order that physicians may record their cases as they occur through the coming year.

CLINICAL MEMORANDUM.

A CASE OF EPILEPSY AND MIGRAINE, APPARENTLY DEPENDING UPON EYE-STRAIN.[1]

BY F. W. MARLOW, M.D.,
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ALTHOUGH it has been asserted by some writers that epilepsy and migraine do not occur in the same individual, a number of cases has been recorded which prove the reverse to be true in exceptional cases. Liveing[2] records in detail some interesting cases of this kind. In these, for the most part, the attacks commenced and continued for years as attacks of sick headache, afterward becoming epileptic in character; or attacks of epilepsy alternated with attacks of sick headache.

Gowers,[3] also, states that he has seen twelve cases in which both affections occurred in the same individual. In seven migraine had existed for several years, and the patients afterward became epileptic. In five of these seven the migraine ceased, or diminished greatly, when the epilepsy developed. In the five remaining cases the attacks were sometimes epileptic and sometimes migrainous in character. I have myself in three cases noted the occurrence of both maladies in the same patient.

One of Liveing's cases is sufficiently suggestive of the present one to justify the repetition of it here briefly. A girl, eighteen years old, complained of a peculiar kind of headache, from which she had suffered eighteen months; previously feels unwell and depressed, then has a sense of oppression in region of heart, then becomes momentarily confused and speechless. It does not appear that consciousness is lost, as she remembers what is said at the time. Sometimes there are no premonitory symptoms. These symptoms are now invariably followed by a severe frontal headache, terminating in a heavy sleep of three or four hours' duration. Sometimes two attacks occur in a day. Once the headache was absent, but the sleep occurred as usual.

Olmerod says that a patient described to him attacks commencing with symptoms of sick headache and ending with an epileptic seizure.

The patient, an unmarried woman, aged thirty years, was first seen by me on October 10, 1890. She had been subject to what she called a common sick headache from early childhood, occurring perhaps once or twice a year, but at about fourteen years of age became subject to a much severer type of headache, occurring twice or three times a week during the whole period of time she was subject to it, with the exception of one interval of seven weeks. The ordinary duration was from twenty-four to thirty-six hours, but some attacks lasted three days. As a rule, there was no warning or premonitory symptoms, but occasionally for an hour or two before pain commenced there was a "strange, tight feeling," in the top of the head, and so much dizziness that she couldn't walk. The pain was situated between the eyes and in the back of the head, was most intense in character, and was accompanied from the start or within two hours of it, by constant nausea and uncontrollable vomiting. Latterly she had in some attacks, in her own words, a "sort of spasm in which I would set my eyes and straighten back, and know nothing for perhaps five minutes." For the pain and vomiting ether and chloroform were commonly administered, and sometimes morphin subcutaneously.

There was no difficulty in finding the right words, or in thinking; but the feeling of sickness was so great that it was an effort to speak. Her tongue and arms got very numb during the attack and sometimes her legs also. No loss of memory followed the attacks; on the contrary she never felt brighter than immediately after one. The attacks commenced either during the day or night, with a tendency latterly to begin in the daytime. There was no drowsiness during the attack, and even the subcutaneous injection of morphin failed to produce sleep. After the headache was over she commonly slept for a short time.

Her father used to have very severe headaches until he partially lost the sight of one eye twelve years ago, since which time the severe headaches have not occurred. An aunt, also, was subject to sick headaches and died suddenly in a nervous seizure of some kind.

It will hardly be denied that the diagnosis of an unusually severe type of sick headache was completely warranted by the symptoms, which may be briefly summarized as follows: Periodic headaches accompanied by nausea and vomiting, and with numbness of tongue and extremities, commencing in early childhood, and occurring in a patient with a family history of sick headaches. That, at any rate, was my diagnosis at the time, and remained so until recently, when the description of an attack by an eye-witness caused me to modify it.

[1] Reported before the Syracuse Academy of Medicine.
[2] "Treatise on Megrim and Sick Headache."
[3] "Diseases of the Nervous System."

In one attack seen, the patient dropped suddenly and without warning from the chair in which she was sitting, in a completely unconscious state, became rigid, arms and legs stiffening out, frothed at the mouth, and there were some slight convulsive movements. The unconsciousness lasted two hours, and was immediately followed by severe nausea and intense headache.

On another occasion the attack came on while on the cars, and just as she was about to pass out through the doorway. In falling she grasped the handle of the door, which she held in so rigid a spasm that it was only disengaged with great force. It required three men to get her out of the train, and she was ill with headache and vomiting for three days afterward.

It became evident therefore, that whatever name might be given to the termination of the attack, the onset consisted of a typical epileptic seizure.

It is scarcely necessary to state that every physician, regular and otherwise, in the neighborhood of her home had been consulted, but without benefit. From the age fifteen to eighteen years there was a complete suppression of menstruation, to which the attacks were at that time attributed. A five month's residence and treatment in the private hospital of a New York gynecologist resulted in a restoration of this function, but made no difference whatever to the frequency or severity of the so-called headaches. She was treated also in other cities, but without benefit. It was, therefore, with but little expectation of relief that she acted upon the suggestion of a friend, and had her eyes examined.

She has always been in the habit when reading of looking sideways, turning the eyes to the left, and also suffered from some twitching of the right eyelid and side of nose, and has a tendency to hold objects very near, although her distant vision is good.

Examination shows

R. V. $\frac{6}{6}$; + 0.25 D. cyl. ax. 60° improves.
L. V. $\frac{6}{12}$; + 0.75 D. cyl. ax. 100° improves.

Tests for muscular equilibrium shows practical orthophoria.

After homatropia:

R.V. $\frac{6}{12}$; + 1.25 D. S. ⊃ + 0.25 D. cyl. ax. 60° = $\frac{6}{6}$–
L.V. $\frac{6}{12}$; + 0.50 D. S. ⊃ + 0.75 D. cyl. ax. 100° = $\frac{6}{6}$–

Prescribed for constant wear:

R. + 1. D. S. ⊃ + 0.25 D. cyl. ax. 60°.
L. + 0.25 D. S. ⊃ + 0.75 D. cyl. ax. 100°.

Five years and a half have now elapsed and she has had no recurrence of the attacks, and has had no other treatment. Within six months of the time she commenced to wear glasses she had gained twenty pounds in weight.

This case brings up the question of the difference between *idiopathic* and so-called *reflex* epilepsy. We know epilepsy only by its history and symptoms; of its pathology nothing is known. All statements regarding it are hypothetical or conjectural. It is generally admitted by writers on the subject that the symptoms of the idiopathic are indistinguishable from those of the so-called reflex form. It is also admitted that convulsions due in the first place to the irritation of intestinal worms, may continue after the worms are discharged as idiopathic epilepsy. Furthermore, the peripheral source of the so-called reflex attack may be extremely difficult to discover. This being doubtlessly true, it will not be denied that the peripheral source is sometimes not found at all, though it exists, and that the failure to discover it in any case is not a proof of its non-existence. We also find the assertion under the heading of prognosis that reflex epilepsy may be cured by the removal of its peripheral source of irritation, whereas the cure of a case of idiopathic epilepsy is most exceedingly rare. All of which amounts to this, that so long as epileptic attacks remain unchecked by the removal of the peripheral irritation or strain upon which they depend they are to be considered idiopathic in character, but as soon as the removal of this strain prevents the recurrence of the attacks, they are to be classed in the far less serious and important category of reflex convulsions. It is easy to understand on this very simple method of classification, why idiopathic epilepsy is so very rarely amenable to treatment. It doubtless resembles other functional disturbances, in not ceasing until its cause is removed.

The present case bears strongly on this point. It presents many—all the necessary characteristics of the idiopathic disease. Occurring in a patient with a family history of sick headache, possibly of epilepsy, commencing early in life, replacing attacks of ordinary cephalalgia the attacks being absolutely sudden in their onset, with total unconsciousness and convulsions, terminating in an attack of typical sick headache, commencing sometimes in the night and sometimes in the day, and occurring at short intervals for a period of sixteen years, during which time she was treated by many physicians in her own neighborhood and elsewhere without any relief, it is hardly likely that any of these physicians would have hesitated to declare it a case of true idiopathic epilepsy.

From the standpoint of history, symptoms, and associations, this was a case of idiopathic epilepsy; from the standpoint of its cure, a case of reflex epilepsy.

It emphasizes the importance of removing all sources of peripheral irritation or strain, even when all indications are in favor of the case being idiopathic in nature.

MEDICAL PROGRESS.

The State of the Blood Attending Metastatic Carcinosis of the Bone-Marrow.—Epstein (*Zeitschrift für klinische Medicin*, B. 30, H. 1, 2, p. 121) has reported the case of a woman, without hereditary predisposition, who complained of pain in the right lower extremity, and especially referred to the femur. The patient was languid and emaciated, although the appetite was preserved. From time to time there was vomiting, and there was increased thirst. Following a tepid bath hematemesis occurred, and the stools contained coffee-ground like material. Subsequently nose-bleed occurred frequently. The skin and mucous membranes were waxy-yellow in appearance. The pulse and respiration were accelerated, although temperature was slightly below normal. The

lymphatic glands at the left angle of the lower jaw and at the flexures of the elbows and groins were enlarged, hard, and movable. Each breast contained a firm nodule, and the nipple was retracted. The percussion-note at the apices of the lungs, and over the remaining anterior portion, was hyper-resonant upon the right, but upon the left the resonance was impaired. Upon the right the breathing was vesicular and upon the left harsh. At the apex of the heart a systolic murmur was audible, increasing in intensity in the direction of the pulmonary artery. The stomach was displaced downward. The area of hepatic percussion dulness was slightly increased. The lower extremity of the spleen was palpable. The urine was passed in diminished quantities, but presented no other abnormality. The uterus was dragged to the right and backward and was retroverted. The right lower extremity was painful and flexed at the knee-joint. In the progress of the case the pulmonary percussion dulness was increased over the whole left chest, and fine moist râles were heard. Over the heart systolic and diastolic friction murmurs became audible. A purulent discharge took place from the left ear. The patient grew gradually weaker and finally died in collapse. Upon *post-mortem* examination cirrhosis carcinoma of the left breast was found, with metastases in the right breast, in the axillary, cervical and mediastinal glands, in both tonsils, in the lymphatics of the pleura, in the gastric mucosa, in the dura mater, and in the left mastoid process; as well as in the bone-marrow of all the bones examined. The blood contained only nineteen per cent. of hemoglobin. Exact estimations of the number of corpuscles could not be made, but a study of cover-glass preparations disclosed a high degree of oligocythemia. The red blood-corpuscles were very variable in size and many were nucleated; some of the nuclei had evidently undergone fragmentation. The red cells, and especially the nucleated ones, were distinctly polychromatophilous. The proportion of red to colorless corpuscles varied from one to twenty-five, and one to forty. The increase in the number of the colorless cells involved especially the large mono-nucleas form, the majority of which presented netrophule granulations. Cells resembling myelocytes were also found. But two eosinophil cells were found.

Active and Passive Immunity to Cholera, Typhoid Fever, and Allied Disease-Processes.—PFEIFFER (*Deutsche medicinische Wochenschrift*, 1896, No. 15, p. 232), formulates in the following propositions the results of his investigations upon the subject of immunity: The cholera poison is contained in the body-substance of the cholera-vibrio, so that dead, as well as living cholera bacilli show marked toxic properties. The cholera poison becomes capable of absorption by the disintegration of the cholera bacteria; analogous conditions have been established as regards typhoid fever, anthrax, chicken cholera, staphylococcus infection, and apparently influenza. Animals may be rendered immune to toxic doses of living cholera spirilla, and typhoid bacilli by previous treatment with various substances of bacterial and non-bacterial origin. This protection is transient, and does not depend upon specific changes in the fluids of the body, and is designated as resistance, in contradistinction to specific immunity. In the blood-serum of human beings and animals that have been exposed to the action of living or dead cholera spirilla or typhoid bacilli, there occur specific protective bodies, which are thus capable of rendering aid in differential diagnosis in cases in which ordinary methods have failed; and these substances may be made to accumulate in the blood in concentrated degree by properly conducted immunization. In their relation to chemic and physical agencies, they bear a close analogy with the antitoxins, from which, however, they are differentiated by their action. While the antitoxins occupy a specific relation to certain poisons, and are capable of destroying these in the animal body, the anti-bodies of cholera and typhoid fever are incapable of thus acting upon the poison of typhoid bacilli and cholera spirilla. Their activity consists in the destruction of the bacteria, but this property makes itself manifest, as a rule, only in the body, and is capable of demonstration outside the body only under special circumstances. These anti-bodies are also found, though in small quantities, in the normal blood of animals and human beings. They are neither bacterial products deprived of virulence, nor combinations of these with components of the immunized organism, but they are probably entirely new substances resulting from the specific reaction of the body to a specific irritant. The evidence points to the view that the anti-bodies are specific ferments. It is possible that the antitoxins also are specific enzymes. As fermentative activity plays an important part in the production of natural immunity, it is possible to relate natural and acquired immunity, antitoxic and bactericidal functions to a common general principle.

Post-diphtheritic Paralysis a Month after Serum Treatment.—FILLIATRE (*Gazette Hebdomadaire de Médicine de Chirurgie*, 1896, No. 33, p. 385) has reported the case of a child, nearly three years old, presenting symptoms of croup, which proved on bacteriologic examination to be diphtheritic. An injection of fifteen c.cm. of antitoxic serum was at once made into the right flank, and forty-eight hours later a second injection of ten c.cm. into the left flank. In the course of twelve hours, the false membrane had completely disappeared, the child breathed easier, the pulse was normal, the fever had disappeared, and only the sub-maxillary adenopathy remained. The child continued well for more than a month, when it was observed to speak through the nose. A day later, speech was almost unintelligible, and saliva dribbled from the mouth. In the course of several days more, the head could not be held up, the chin falling upon the chest. Deglutition also became difficult. The knee-jerks as well as the pupillary reflexes, were preserved. Sensibility was intact. The muscles, especially enfeebled, were the extensors of the neck, the rotators of the head, excepting the sterno-mastoid, the supra-spinous, and the elevators and abductors of the scapulæ. The fascial muscles also were largely affected, as well as the recti abdominis. Under electric treatment, improvement rapidly set in, and soon proceeded to final recovery.

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ANTITOXIN IN DIPHTHERIA; THE COLLECTIVE INVESTIGATION.

THE AMERICAN PEDIATRIC SOCIETY'S REPORT, the full text of which appears in this issue of the NEWS, is worthy of the careful perusal of every physician interested in the subject of diphtheria. It is the first time that an investigation has been attempted on such an extensive scale of cases drawn exclusively from private practice, and forms a fitting conclusion to the antitoxin discussion which has been going on in our journal for the past few weeks.

Statistical evidence may be worth much or little according to the purpose with which it has been gathered. Its value depends mainly upon four factors: the number of cases; the conditions under which they have been observed; the accuracy with which they have been reported; and the care and honesty with which they have been analyzed. Let us look at the Society's Report with these points in mind.

While a report of fifty or a hundred cases is of value and may be convincing to the mind of the physician who has observed them, they are not conclusive. To establish any point in a disease like diphtheria, the figures must be large enough to include groups, not only of mild but of severe cases, or, in other words, large enough to represent all the variations of the disease. The number of cases in the report—nearly six thousand—is great enough to warrant some positive deductions. That the Committee were able to secure so large a number of cases is indeed surprising, and cannot fail to show how strong a position antitoxin already has in the judgment of the physicians of this country.

In an acute disease, cases observed under special conditions are not to be depended upon to determine the value of any mode of treatment, *e.g.*, statistics taken exclusively from hospital practice, those of cases of a certain age, or from a single locality, or from one epidemic, do not represent the facts of a disease so well as when they are drawn from widely-scattered districts and are observed under varying conditions. Reports from 114 cities and towns are much more valuable for evidence than if all the cases had been treated in New York or Philadelphia, where the special characteristics of the local epidemic would need to be taken into account. In the recent discussions of diphtheria in New York, the results obtained in the Willard Parker Hospital have figured altogether too prominently. The number of cases treated there is not large, and the conditions are somewhat peculiar. Moreover, the present results are useful only for comparison with previous years, and are in no sense to be compared in importance with the results obtained with antitoxin in the wide field of general practice. The Committee has endeavored to reach as large a number as possible of physicians who have used antitoxin, and has succeeded in obtaining reports from over six hundred. Of this number, almost all have recorded themselves as strongly in favor of the antitoxin treatment. A general conclusion reached by so many physicians carries great weight—much more weight than would the same number of cases treated by a score of physicians. The report may thus be taken as a vote upon the value of antitoxin by over six hundred American physicians.

As an example of a faulty mode of collecting cases, let the reader study the paper of Dr.

Stowell in the MEDICAL NEWS of June 20th or the New York *Medical Record* of same date, where the purpose of the writer has apparently been to collect from medical literature all the reports possible in which there was a low mortality. Such a collection of cases proves nothing even though they aggregate thousands except, perhaps, that diphtheria is sometimes mild, as we all know. Such tables represent a very favorable, but a very fallacious, showing, and are entirely without value in determining what the mortality of diphtheria really is.

Any set of figures may be twisted, as everyone knows, to prove propositions which are diametrically opposed to each other, according to the bias of the person who analyzes them. The work of the Committee in this respect is a model of fairness and justice. That the facts reported have been presented without prejudice is, we think, evident upon every page. The position taken by the Committee in excluding mild cases not confirmed by bacteriological examination is a very proper one, although by this fact the percentage of mortality has certainly been raised; while, by including doubtful cases which terminated unfavorably, the report obviates the criticism of having excluded any evidence unfavorable to antitoxin.

The general result of the analysis of these cases is decidedly favorable to the antitoxin treatment, and the report as a whole is, we think, the strongest evidence which has yet been brought forward. Let us look at a few points in detail: First, the results obtained in cases under two years. It is well known that the mortality of such cases is always high, whether observed in private or public practice. That 867 cases were treated, with a mortality of only 23.3 per cent., is a remarkable showing; or, excluding moribund cases, 19.2 per cent. Again, a mortality of 25.9 per cent. in 533 cases of laryngeal diphtheria requiring intubation, is a record which has never been approached. Whatever may be said of the results obtained in pharyngeal diphtheria, and low mortality figures have been published by many other methods of treatment, we think the committee is right in stating that it is by the results in the laryngeal cases that the real value of antitoxin is to be tested. Upon this point the evidence of the report in favor of antitoxin seems to be conclusive.

So much has been said in hospital reports concerning the frequency of broncho-pneumonia following antitoxin, that we look with special interest to see what the report has to say concerning this complication. The percentage of broncho-pneumonia (5.9) is remarkably small, and it is still more remarkable that broncho-pneumonia was ascribed as the cause of death in only about one-seventh of the fatal cases. This is in strong contrast with hospital results, and points to the fact that it is "hospitalism," and not antitoxin, which is responsible for the prevalence of the pneumonia.

It is to be regretted that the reports sent in to the Committee did not furnish fuller details regarding nephritis. Examinations of the urine are so frequently neglected in private practice that the data on this subject were quite imperfect. Whatever the frequency of nephritis may have been in the cases, there were only fifteen in which this was assigned as the cause of death—a very small proportion, as compared with general results.

The profession certainly owes the Society and the Committee a debt of gratitude for having collected such a mass of data relating to the treatment of diphtheria. It has been patiently awaiting a fair statement of all the facts, not one side of the question, and in this report we think all the facts have been fairly presented. We are glad to note that the work of the Committee is to be continued for another year.

THE PRESENCE OF THE LEPRA-BACILLI IN THE MEDULLA OF A FATAL CASE OF SYRINGOMYELIA.

IT has been contended by some observers that the symptoms included in the designation syringomyelia is really but a manifestation of leprosy, and it must be admitted that there is, at times, a considerable resemblance between the two sets of phenomena. There is, however, abundant clinical evidence that the two morbid processes are distinct, although in one case of syringomyelia lepra-bacilli were found in some of the peripheral nerves. PESTANA and BETTENCOURT (*Centralblatt für Bakteriologie, Parasitenk. u. Infektionskrankh.*, B. XIX, Nos. 18, 19, p. 698) now re-

ports a case of syringomyelia in which, with characteristic phenomena, lepra-bacilli were found at the site of the lesion in the medulla oblongata. The patient was a man forty-six years old, without hereditary predisposition, in whom symptoms of syringomyelia had been present for three years. At first there had been weakness of the left arm, with increasing intensity, followed a year later by similar weakness in the right arm. In the meantime it was noticed that contact with hot bodies was unattended with discomfort. Examination showed that the upper extremities were insensitive to heat and cold, and in less degree to touch. Later weakness appeared also in the lower extremities, and the muscles first affected began to undergo atrophy. Tactile and thermic insensibility increased in degree and extent, involving, however, principally the right side, and painful sensibility also became diminished and in places lost. The wasting and the weakness, with fibrillary contractions, were, on the other hand, the more marked upon the left side. The case thus progressed to a fatal termination. Upon *post-mortem* examination the cord was found enlarged in the cervical region in consequence of the presence of a dark-gray mass—which proved to be gliomatous—and in the midst of which excavation had taken place. The disease extended from the cervical enlargement to the medulla and had given rise to inflammatory and degenerative changes in adjacent portions of the cord. Bacterioscopic examination of sections of the affected medulla disclosed the presence of numerous lepra-bacilli.

OPHTHALMOLOGY.

A CRITICAL RESUME OF RECENT PROGRESS.

Experiments with the Röntgen rays have been conducted in relation to nearly all of the special branches of medicine, including ophthalmology. While no brilliant beneficial results have been arrived at, and it is not expected that the Röntgen rays will confer much benefit on suffering humanity when applied to ophthalmology, the experiments have developed certain facts which are of interest to those who are working in this particular branch of medicine.

Dr. Van Duyse (*Arch. d'Ophthalmologie*, February, 1896) experimented with rabbits' eyes, introducing pieces of lead into the anterior segment of the globe, and obtained skiagraphs by placing a sensitized plate below the head and projecting the X-rays from the Crookes' tube from above, giving an exposure of twelve minutes. The location of the foreign body could be readily determined by this means. Van Duyse is of the opinion that this procedure may be of value when the piece of metal is lodged in the anterior segment of the human eye. He suggests, however, that the cryptoscope of E. Salviani or fluoroscope of Edison may be utilized for the purpose of locating a foreign body, making it unnecessary to obtain a shadowgraph. Exposures of the human eye are made by Van Duyse by placing the plate as far back at the inner canthus as possible, projecting the X-rays from the temporal side. In order to produce marked prophthalmus he suggests injecting sterile, normal saline solution into Tenon's capsule, causing the solution to pass behind the globe and to push the globe forward.

Dr. F. C. Harousch (*Annal. of Ophthal. and Otol.*, vol. v, p. 267) has made a number of experiments with the X-rays on pigs', calves', and lambs' eyes, with and without the introduction of metallic foreign bodies. The time of exposure was forty-five to fifty minutes. Where satisfactory exposures could be obtained, the position of metal foreign bodies in the eyes could be readily determined. An interesting point observed was the relative resistance of the various parts of the eye to the Röntgen rays. The obstruction offered to the rays increased in the following order: (1) Capsule of lens. (2) Choroid and retina. (3) Sclerotic. (4) Cornea. (5) Vitreous body. (6) Lens. Knowing that the X-rays produce no sensation of vision when they reach the retina through the cornea, lens, and vitreous, experiments were made to determine the effect of the X-rays on the retina when passed through the sclera and choroid. No sensation of light was produced. An attempt was made to locate a piece of steel in the interior of an eye, which had entered the eye eight weeks before the patient came under observation. Iridocyclitis was present. A ciliary staphyloma, 2 mm. in diameter, was observed situated 6 mm. above the margin of the cornea; vitreous hazy; no

foreign body could be seen. A skiagraph of the anterior segment of the globe was obtained by placing the sensitive photographic plate on the temporal side, and projecting the X-rays over the bridge of the nose. A dark line was seen in the negative which was thought to represent the shadow from the foreign body, situated near the base of the staphyloma, but on making an incision into the globe at the point indicated no foreign body was found.

The experiments briefly referred to above have developed the fact which is of scientific interest, that the transparent media of the eye offer obstruction to the passage of the X-rays similar to that of glass. The fact is also demonstrated that the Röntgen rays have a very limited application in ophthalmology.

The treatment of diphtheritic affections of the eye, by the use of the Roux-Behring antitoxin, has excited no little interest in France, England, and Germany, very gratifying results having been reported. Diphtheria of the conjunctiva is of relatively rare occurrence in the United States; however, it does occur, and is so rapidly destructive to vision that it is important to know that we possess a remedy potent in arresting its ravages. Coppez has contributed two articles on the subject (*Jour. de Med. et de Chir. de Brux.*, November 24, 1894, and *Rev. Gen. d'Ophthal.*, 1896, p. 51). The first case reported occurred in a child of nineteen months. Loeffler's bacillus was demonstrated by culture methods. At the time the injection was made the conjunctivæ of the lids of both eyes were covered with pseudo-membrane, and the corneæ were hazy. An injection of 10 c.cm., 1600 units Behring, was given. In forty-eight hours the membrane had disappeared. The child made a good recovery. In a second case, occurring in a child of sixteen months, the false membrane was present on the conjunctiva of one eye only. The Loeffler bacilli were present. Ulcer of the cornea developed on the day after the injection was made. The membrane was gone on the fourth day. The corneal ulcer healed, having done but little damage to the cornea. No membrane developed on the conjunctiva of the fellow eye. Coppez attributes the non-appearance of pseudo-membrane on the conjunctiva of one eye to the prophylactic effect of the antitoxin. Hamilton and Emery (*Br. Med. Jour.*, 1895, p. 1419) report a case of diphtheria of the conjunctiva following scarlatina and accompanied by faucial diphtheria. Both eyes were affected; ulcer of the cornea of one eye. Two injections, each of 10 c.cm. of antitoxin, were given in the first twenty-four hours. Improvement began almost immediately. Four days later a third injection was given as pseudo-membrane had again appeared in the throat. There was perforation of the right cornea, but recovery with good vision occurred. Schmidt-Rimpler (*Centralbl. f. p. Augenheilk.*, 1895, p. 353) reports the treatment of three cases of post-diphtheritic paralysis of the accommodation, treated by injections of antitoxin, and states that in his opinion recovery took place much more rapidly than would have been the case if the antitoxin had not been employed. Favorable reports of the effect of serumtherapy in diphtheria of the eye have also been made by Morax, Konigshofer, Recken, Darier, and others. The results obtained were good in all cases reported.

Of the remedies that have recently attracted attention in ophthalmological therapeutics, formic aldehyde is probably the most important. The preparation used is that known as formalin. It is a forty per cent. solution of formic aldehyde. The solutions mentioned below are dilutions of formalin. Guaita (*Ann. d'Ottal.*, v. xxiii, p. 360) was one of the first to exploit the excellencies of this remedy in ophthalmic practice. The immediate germicidal power of formic aldehyde is much inferior to solutions of the sublimate of similar strength, but its great diffusibility, due to the absence of any tendency to coagulate albumin, renders it of greater value as an antiseptic. Cutting instruments are not affected by it. Guaita found formalin of value in the treatment of corneal ulcers, infected wounds, purulent and mucopurulent conjunctivitis, and trachoma. He employed a solution of 1–100 to touch the corneal ulcer, and gave a solution of 1–2000 to be used as a collyrium every four hours. Formalin in solution of 1–1000 or less is somewhat irritating to the conjunctiva, but in solution of 1–2000 it produces no unpleasant sensation; in this strength the remedy is harmless. Valude (*Recueil d'Ophthal.*, 1893, p. 431) substantiates the claims regarding the value of formic aldehyde as

set forth by Guaita, he has found it efficacious in post-operative infection, instilling a solution of 1–1000 into the eye every three hours. Davidson (*Br. Med. Jour.*, 1896, p. 144) uses a solution of formalin (Schering) 1–2000 to 1–3000, directing that it shall be dropped into the eye freely every hour—a virtual lavage of the eye. Employed in this way it has proven to be of great value in cases of infected corneal ulcer, with or without hypopion. One of the cases reported by Davidson is briefly as follows: Prolapse of the iris accompanying a perforating lacerated wound of the cornea, in its lower half, incurred four days previously. Status praesens: Infiltration of corneal tissue adjacent to the wound; hypopion; iritis. Treatment: atropin, one per cent. instilled two or three times daily. Eight or ten drops of a 1–2000 solution of formalin was dropped into the eye every hour when the patient was awake. When seen the next day the cornea was clear, hypopion gone, iris fairly well dilated, no pain. Burnett (*Ophthalmic Record*, 1896, p. 310) has met with much success in the use of formic aldehyde in the treatment of corneal ulcers, muco-purulent and purulent conjunctivitis. He employes the Schering preparation in the strength of 1–1000 to and 1–2000, applied every four hours.

John E. Weeks, M.D.

ECHOES AND NEWS.

The Pasteur Chair.—Until recently there has been no appointment to fill the Chair in the French Academy of Medicine left vacant by the death of Pasteur. It will now be occupied by Dr. Roux who has been made an associate.

Changes in the Medical Department of the University of Pennsylvania.—At a meeting of the trustees of this institution on June 23d, Dr. Alexander C. Abbott was chosen Professor of Hygiene to succeed Professor John S. Billings, resigned.

Rush Medical College.—Professor Edwin Klebs has been elected to the Chair of Pathology in Rush Medical College. This college has recently been recognized by the Examining Board of the Royal College of Physicians and the Royal College of Surgeons, London, England. This recognition entitles its alumni to all the privileges accorded to the graduates of other institutions recognized by that Board.

Electricity as a Hemostatic.—Mr. Lawson Tait has invented an instrument by means of which the electric current can be very successfully applied to control bleeding. We have not yet seen a full description of his method.

Typhoid Fever at Plymouth Again.—In 1885 a most serious epidemic of typhoid fever raged at the little town of Plymouth, Pa. The water supply has again become polluted, and for the two weeks past there has been an alarming increase in the spread of this disease with a number of deaths. Efforts to purify the water have not met with success, and much fear is entertained by the local profession for the safety of the populace.

Vaccination of Sheep.—A member of the Pasteur Institute of Algiers has discovered a vaccine that will prevent "sheep-rot." All animals vaccinated either escape or have a mild form of the disease, from which they invariably recover.

Death of Dr. Choate.—We record with deep regret the sudden death of Dr. George C. S. Choate, which occurred in New York on June 28th. Dr. Choate was a brother of Mr. Joseph H. Choate, the famous member of the New York bar. Nearly a half century of his life has been spent in the practice of medicine in New York and Massachusetts, his native State. Besides a large practice in New York City, he has for many years maintained a private asylum at Pleasantville, Westchester Co., and it was there that Horace Greeley died in 1872. Dr. Choate continued in active practice until his death.

A Skiagraph of Li.—While in Germany recently the Chinese statesman, Li Hung Chang, took advantage of an opportunity to have the bullet which he carries in his cheek located by the Röntgen rays. It will be remembered that when in Japan, arranging the treaty of peace between that nation and his own, he was assaulted by a would-be assassin, who, it was feared at the time, had been only too successful in taking the life of this truly great man. The picture secured shows the tract of the wound through the tissues of the cheek and the encysted missile slightly below the point of entrance.

The Cavendish Lecture.—On the evening of June 17th, Mr. Thomas Bryant, ex-President of the Royal College of Surgeons of England, delivered the Cavendish Lecture to a large audience at the West End Hospital, London. The subject of the address was "Jenner and his work."

Creolin.—This popular antiseptic agent has been generally accorded entire freedom from toxic effects, but, in the light of some recent experiments upon lower animals, this superiority must be called in question. Professor Hobday of the Royal Veterinary College, England, reports in the *Lancet* that two ferrets subjected to applications of the drug, diluted with water in the proportion of two ounces to a quart, died in half an hour. Subsequent investigation proved it to be an irritant and narcotic poison to both dogs and cats, especially when applied over a considerable area of the body. Such a report emphatically suggests caution in treating extensive wounds upon the human body with creolin as a dressing.

Medical Longevity.—Rare opportunities, together with a predilection for such investigation, has allowed Dr. Salz-

mann of Esslingen, to present us with some reliable and quite interesting figures relative to the average length of life among medical men. During the sixteenth century he found it to be only thirty-six years and seven months —in the seventeenth century, forty-five years and eight months; in the eighteenth century it reached forty-nine years and eight months, while in the present century fifty-six years and seven months. The addition of twenty years to the average life of the physician has been the result of advancing scientific knowledge both as relates to prevention and cure.

A New Hypnotic.—From a species of cactus, known to the Mexicans as "Pellote," Dr. Hefter of Leipzig, has separated the active principle which he has named Pellotin. Professor Jolly of Berlin, has made a number of experiments with it upon patients in Charité Hospital, Berlin, following those previously made by Dr. Hefter upon animals and himself. He found that three quarters of a grain would almost always cause several hours of sleep, and that no subjective symptoms followed its use beyond a little giddiness in about twenty per cent. of the patients. He observed, however, a marked influence upon the pulse rate which was ten to twenty beats lower during sleep, but returned to normal on waking. It is estimated that half a grain is equivalent to fifteen grains of trional or thirty grains of chloral hydrate. The alkaloid is quite insoluble, hence the hydrochlorate is always employed.

Alcohol and Sunstroke.—During the month of January there occurred over three hundred deaths from sunstroke in Australia. When called upon to offer suggestions relative to its prevention the Medical Board promptly informed the Colonial Government that of all the predisposing causes none was so potent as undue indulgence in intoxicating liquors—and in its treatment nothing seemed to have a more disastrous effect than the administration of alcoholic stimulants. After this precaution, suggestions were offered regarding the selection of proper clothing, etc.

The Death of Dr. Langerhaus' Son Explained.—A full and satisfactory explanation of the sudden and tragic death of the little son of Dr. Langerhaus immediately following an injection of antitoxin serum has been reached through the subsequent investigation. In the first place the analysis of the serum proved it to be reliable, and no irregularity in the method of its administration could be discovered. It was found however that the child had just completed an unusually heavy meal, and as the necropsy showed his larynx and treachea well filled with a material identical with that found in his stomach the accepted inference is that while faint from the shock of the injection he was unable to eject the vomited matter from his throat and instead drew it into the air passages with fatal effect. It may be concluded then that what appeared to be quite damaging evidence against the serum is really the result of a very simple accident.

The Philadelphia Water Supply.—The Municipal Council of Philadelphia is very properly devoting much attention to the betterment of the water provided for their city. The modern method of filtration is generally favored, and a large corporation has presented a proposition promising to procure daily 350,000,000 gallons of water from the Delaware River above the city and subject it to this process. No more important economic question can engross the thoughts of a community than the condition of its water supply.

The Medical Society of New Jersey.—The New Jersey State Medical Society closed a successful meeting at Asbury Park on June 24th. The subject of the antitoxin treatment of diphtheria occupied the attention of the body. A prolonged and spirited discussion showed the members divided in their estimate of its value. The new officers elected were: President, F. J. Smith of Bridgeton; first vice-president, D. C. English of New Brunswick; second vice-president, C. R. P. Fisher of Bound Brook; third vice-president, Luther M. Halsey of Newark; corresponding secretary, E. L. B. Godfrey of Camden; recording secretary, William Pierson of Orange; treasurer, Archibald Mercer of Newark. The next annual meeting will be held at Atlantic City in June, 1897.

Living Greek in the Schools of France.—Dr. A. Rose's public lecture on the proper pronunciation of Greek, which he gave on June 5th, in the New York Academy of Medicine, was a social and philological success. It will be remembered that the meeting was presided over by Dr. S. Stanhope Orvis, Professor of Greek of the University of Princeton. And addresses were delivered by Hon. D. N. Botassi, Consul-general of Greece, Mr. Charles E. Sprague, the president of the Union Dime Savings Bank and a Philhellen besides, and by Professor Leotsakes. Now it appears that it is to become an event of unusual significance. Almost simultaneously with this meeting the Greek journals brought the official news that the French Government had ordered the abandonment of the Erasmian, and the introduction of the living Greek, pronunciation in all the schools of the French Republic in which Greek is taught, and had induced the Greek Government to call together a committee, under the presidency of the Minister of Public Instruction in Greece, for the purpose of making propaganda for the introduction of the living Greek pronunciation in other countries besides France. The first steps toward the appointment of such a committee has been taken by the Greek ambassador in Berlin. The committee will publish a scientific work to prove the correctness of the living Greek pronunciation; to show the advantages of the introduction of living Greek in place of Erasmian pronunciation, and finally to prepare a memorandum instructing the representatives of Greece in foreign lands how to act in the matter. The facility with which living Greek is acquired by the natural method of speech places it on a par with any other modern language. Indeed, with the introduction of living Greek in all the schools of the civilized world, the idea of having Greek for an international language for medical schools does not appear so Utopian as some have pronounced it.

SOCIETY PROCEEDINGS.

SECOND ANNUAL MEETING OF THE AMERICAN LARYNGOLOGAL, RHINOLOGICAL, AND OTOLGICAL SOCIETY,

Held in New York City, April 17 and 18, 1896.

EDWARD B. DENCH, M.D., of New York, President.

FIRST DAY—APRIL 17TH.

THE DIAGNOSTIC VALUE OF OPHTHALMOSCOPIC EXAMINATION IN CEREBRAL DISEASE DEPENDING UPON AFFECTIONS OF THE EAR.

DR. THOMAS R. POOLEY, in a paper on this subject, said that probably the first to call attention to the value of the ophthalmoscope in this connection was Dr. Kipp of Newark. One of the cases reported by him was of special interest. It was one of acute purulent inflammation of the middle ear, with double optic neuritis, but without tenderness, swelling, or spontaneous pain in the mastoid process. The patient complained of pain and throbbing in the ear which had lasted for six weeks. The tympanic membrane was of a deep red color, and much swollen. The ophthalmoscope showed the eyes to be entirely normal. A free opening was made in the drum membrane, and the cavity syringed out daily. About two months later, the ophthalmoscope revealed a well marked optic neuritis in both eyes, although vision was not impaired in either eye. The temperature was 99°, pulse 72, and there was no chill. The mastoid was opened and thoroughly cleaned out subsequently, and this was followed by improvement. After a month or two the discharge ceased entirely. The optic neuritis remained stationary for about one week after the operation, and at the end of a few weeks had almost entirely disappeared. She had been kept under observation and had remained in good health, the vision and optic disks being normal.

His own case was one of purulent otitis media occurring in a young boy. He had had otorrhea for many years, and some years previously Wilde's operation had been made at Budapest. When first seen by the speaker, the temperature had been 102.5° and the pulse 128. Wilde's incision was made, and quickly followed by a subsidence of the temperature, but another rise of temperature occurred the next day. Schwarze's operation was then performed, and about a dram of foul, caseous matter removed from the antrum. During the operation, a considerable part of the surface of the dura was exposed in the wound. For twenty days the temperature oscillated between 101.5° and 105.5°, and the patient showed occasional maniacal excitement. At the end of this time, the patient became blind in the right eye and the ophthalmoscope showed optic neuritis on the right side and violent hyperemia on the left. Hemiplegia then developed and soon afterward the patient died. At the necropsy, the vessels of the dura were found to be intensely engorged, and there was a layer of thick, foul-smelling pus which bathed the left hemisphere. The optic nerve was swollen. The cerebellum was normal. A large encapsulated abcess was found in the anterior portion of the occipital lobe on the left side, and around this the brain was softened. It was found that the dura at not been perforated at the mastoid operation.

The following conclusions were drawn: (1) That the ophthalmoscope was valuable in arriving at the diagnosis of cerebral disease, in some instances by confirming the evidence given by other symptoms, in others, by giving the principal, if not the only reliable evidence of brain disease. (2) The intraocular end of the nerve is never inflamed where the disease remains limited to the middle ear and mastoid, but is certain evidence of brain disease. If, therefore, optic neuritis is found, the diagnosis of extension to the brain is certain, whether or not there are other evidences of this condition. (3) The form of optic neuritis is always that seen in affections of the brain, viz.: choked disk—and this may vary from simple evidence of stasis to the pronounced choked disk. In his opinion, the various forms of neuritis described were only different degrees of this particular form of optic neuritis. The presence of optic neuritis was unfortunately no aid in the solution of the problem of determining the localization and nature of the disease. (4) It occurs most frequently in chronic purulent otitis media than in acute cases. In the latter it is very rare. (5) The list of brain lesions in which optic neuritis is observed embraces nearly all the usual lesions—abscess of the brain, meningitis, and sinus thrombosis. (6) The occurrence of optic neuritis in otitis media chronica with implication of the mastoid, and a history of long-standing otorrhea is, by inference, due to a cerebral abscess. (7) The extent to which the presence of slight edema of the optic disk should influence us in determining the operation on the mastoid was an open question, but he thought we might accept Andrews' conclusion, that as the operation, when properly performed, is not dangerous, we may accept edema of the optic disk as an indication for opening the mastoid, with the object at least of establishing free drainage from the middle ear. (8) The existence of optic neuritis as an indication for the more serious operation, such as exploration of the brain for intracranial disease, could only be considered in connection with other symptoms, but so far as it went, it made the presence of intracranial disease more certain.

DR. J. HERBERT CLAIBORNE said that the conclusions presented in the paper covered in a succinct manner nearly all that was known on the subject. Many did not perform the mastoid operation in the manner that Schwarze did. Of this he could speak positively because he had studied at Schwarze's clinic. In none of the cases seen there had there been any symptoms pointing to ocular trouble. In Berlin he had seen for seven weeks an interesting case—one of chronic purulent otitis media. She had suddenly developed a high temperature and delirium, and had died before morning. The autopsy showed that the pus had passed through into the meninges of the brain and had excited a purulent meningitis. It seemed to him that the optic neuritis could hardly be a reliable guide as to the best time to allow the wound to close; the ordinary guide in practice was whether or not the wound was healing properly from the bottom. He doubted whether optic neuritis would prove to be a trustworthy guide to the necessity of operation.

Dr. Pooley said that he did not wish the conclusions to be accepted as entirely his own; they had been intended to represent rather what had been gleaned from the literature of the subject. He felt sure, however, that optic neuritis would be found much more frequently if the physician took the trouble to look for it. The percentage of cases in which the eye is affected in purulent middle ear disease has not yet been determined.

REPORT AND EXHIBITION OF A CASE OF UNUSUAL SPEECH DEFECT.

DR. G. HUDSON MAKUEN of Philadelphia, presented a case of this kind in the person of a young law student. When six months old, this young man had lost the sight of one eye; when seven years old, he had had a severe attack of diphtheria, and another at the age of twelve years; and he had had scarlatina at the age of ten. The purulent otitis media had existed since the scarlatina. In 1893, there had been an acute suppuration of the attic, and aggravation of the old trouble. Adenoid vegetations had been removed on two occasions. There was a marked retraction of the lower jaw, which destroyed the character of the labial sounds, and this could only be overcome by long practice in protruding the lower jaw when speaking. The soft palate was greatly relaxed and was impeded in its action by the adenoid growths. It trying to say "s," instead of the palate rising to the roof of the mouth, it remained down on the tongue, The adenoid thickening in the pharynx was looked upon as the original cause of the defect of the speech, and the patient was carefully instructed as to the best method of securing improved articulation by careful and persistent practice.

DR. H. HOLBROOK CURTIS of New York, exhibited the instrument devised by Professor Oertel of Munich, for viewing the vibration of the vocal cords. The instrument is constructed on the principle of the well-known siren, and is set in motion by an electromotor. If, for example, the siren and the patient are made to sing the same note, say C, there will be 512 vibrations of the vocal cord per second, and the same number of interruptions of the visual field by the siren, and the observer will see that portion of the vocal cord which appears perfectly at rest. By passing slowly from one side of the cord to the other, and properly adjusting the speed of the instrument with reference to the note sung by the patient, the observer can see the nodes and segments of the entire cord. By this instrument, the speaker said, it had been absolutely disproved that sounds are made by the vocal cords coming together, except for a small part posteriorly. With this instrument, the "nodules of attrition" could be seen, and the patient could be taught by a new method to sing in such a way as to remove these nodules inside of a week, even in cases of very long standing. The patient should be given a certain note to sing, and should practise singing this note according to a certain method for hours every day. In this way a very speedy cure of this trouble some disorder among singers could be secured.

Dr. Curtis also exhibited a modification of Ziegel's auroscope.

OTITIS MEDIA SUPPURATIVA WITH AN UNUSUAL PERFORATION OF THE MASTOID.

DR. E. E. HOLT of Portland, Me., reported a case of this kind occurring in a man, forty-five years of age, who had begun to have headache on June 22, 1895. When seen by the speaker on July 30th, there was a perforation on the anterior inferior portion of the membrana tympani through which muco-purulent matter was discharged. He complained at times of pain and tenderness. The ear was treated with cleansing and astringent solutions. There was no tenderness or swelling of the mastoid, but there appeared to be a slight prominence in this region. There had been a very slight rise of temperature at times. After twenty-one days of this treatment, he had decided to chisel away the mastoid, and on doing so he had found the bone extensively necrosed, and pus tracks leading down into the intermuscular spaces in the neck. The speaker deprecated the common practice of dismissing a patient with the simple direction that the ear should be frequently syringed out; it was much safer and better, if the case could not be kept under constant observation, to direct that the ear be kept lightly plugged with clean cotton, and not syringed at all.

THE PRESIDENT said that these cases opening into the digastric fossa were among the most interesting with which we had to deal. He had recently seen a very similar one. Although the temperature had been taken at intervals of two hours, there had been no elevation of temperature. At the first incision, pus was evacuated, and it was found that the interior of the mastoid was entirely broken down. The only symptom of mastoid inflammation in this case was local tenderness and a sinking of the upper and posterior wall. His own experience had been that patients were more apt to infect the auditory canal with cotton than if they left it alone. While it is usually unwise for a patient to syringe out the ear, one of the family could be easily taught to do it properly.

A CONTRIBUTION TO THE STUDY OF LAYNGEAL VERTIGO.

DR. A. C. GETCHELL of Worcester, Mass., in a paper with this title, stated that he had succeeded in collecting forty-one cases. Five of these were over sixty years of age, nine were between fifty and sixty years, thirteen were between forty and fifty years, and the others were still younger. Ten were asthmatic, one was epileptic, and one had an epileptic brother. Loss of consciousness was expressly stated to have occurred in thirty-two cases, and falls in twenty-six. Slight mental confusion was noted in five; dizziness was mentioned in eight cases; true vertigo was mentioned but once. In thirty-three of the cases it was due to violent cough. Tickling or burning sensations about the larynx were mentioned in thirteen cases; congestion of the face was noted in ten; two were reported as pale; bronchial asthma occurred in eight cases. Most of the cases had several attacks, although sometimes at quite long intervals. The treatment had consisted in the internal administration of the bromids, and local measures for the abnormal conditions about the larynx.

The speaker said that Charcot had first described the

disorder and had given it its name, but this certainly did not give a correct notion of the disorder. The average age of the patients was against the theory of its epileptic origin. If the theory of forced expiration were correct, it would seem that obstruction of the circulation should be noticed prior to the attack. The circulatory condition is probably nothing more than an exciting cause in a limited number of cases. Five of the series had nervous temperament. A history of epileptic seizures was not infrequent. It could not be denied that the fundamental pathological fact is an unstable condition of the nervous system. Brown-Sequard's researches showed that the larynx has an intimate nervous connection with the nervous system. The author's conclusions were: (1) That laryngeal vertigo occurred in persons in whom there is an unstable nervous equilibrium; (2) that there was usually some condition of the upper air passages liable to cause glottic spasm; and (3) that severe paroxysmal coughing may cause syncope, but only when there is an existing disorder of the central nervous system.

DR. SARGENT F. SNOW of Syracuse said that he had seen a case of laryngeal vertigo or epilepsy some years ago. A laboring man, about twenty-four years of age, had come to him for examination of the larynx, and had said that he would completely lose consciousness at times, for perhaps thirty seconds. The larynx was found to be markedly congested, the cords were reddened, and he was somewhat hoarse. During the first examination he lost consciousness five or six times as a result of the irritation of the laryngeal mirror. There appeared to be a distinct spasm of the larynx. His physician had been treating him with bromids, but without benefit. This was stopped, and he received treatment directed toward controlling the congestion of the larynx. All his laryngeal symptoms disappeared, and did not return. One member of his family had suffered from epilepsy.

DR. WENDELL C. PHILLIPS of New York said that the only case of this kind that had come under his notice had presented an unusual symptom—a well-marked chronic bronchitis, with bronchorrhea. All the laryngeal attacks had begun with a severe spell of coughing, and then he would fall down and completely lose consciousness for a moment. He had found that treatment of the bronchitis yielded the best results, although the cure was aided by local treatment of the larynx.

DR. R. C. MYLES of New York said that he had seen an interesting case of this kind a few years ago, in a man about fifty years of age. This man was subject to attacks of bronchitis and coughing, and at such times would occasionally suddenly become unconscious for a moment, and then fall. He was a high liver. His diet was somewhat restricted, and the treatment directed to the larynx, and under this a cure was effected. It should be noted that in all cases of death from impaction of a foreign body in the larynx the individual falls unconscious with great suddenness.

DEVIATION OF THE NASAL SEPTUM; OPERATION.

DR. WENDELL C. PHILLIPS of New York, presented a boy who, while playing "shinny," was struck with the stick over the nose. This caused a severe nasal hemorrhage, which subsided without special treatment. Many months later he had been first seen by the speaker. Examination showed almost complete occlusion of both nostrils, as if the blow had caused the septum to be driven back upon itself. Four weeks ago, he broke up the septum completely with the Adams forceps and introduced the perforated cork splints devised by Dr. Berens. These had just been removed and the result was quite satisfactory.

DR. C. W. RICHARDSON of Washington, D, C., said that he had operated upon a number of cases of V-shaped deflections of the septum, but he had found that the septum would drop back into the old position. Since he had used the perforated splints of Dr. Berens, the results had been very good. The reaction from the introduction of these splints usually subsided in three or four days.

DR. DWIGHT L. HUBBARD of New York, said that the great point was not to be in a hurry to remove these corks. He had frequently left them in ten days without any harm. Another point was not to leave out the corks altogether too soon, He had found that relapse had sometimes followed removing them after four weeks, but never if they had been left in for six weeks.

DR. H. H. CURTIS said that he considered this splint the most scientific and useful of the splints devised for this purpose. After doing one of these septum operations recently he had been surprised to find that the patient was a "bleeder." The hemorrhage was stopped by a very light plugging with styptic cotton. He believed that light plugging and pressure with a copper wire at the right spot constituted the best method of checking such hemorrhage,

DR. EWING W. DAY of Pittsburg, said that once while operating under ether he had met with a tremendous arterial hemorrhage after the first incision of the septum, and the patient had nearly lost his life from it. He preferred now to operate under local anesthesia.

DR. PHILLIPS, in closing the discussion, said that Dr. Asch recommended cutting the septum at the point of greatest deflection—near the middle—by means of a specially devised pair of scissors. The trouble in Dr. Day's case was probably that he cut too close to the floor of the nostril. He had seen ulceration and perforation of the septum result from undue pressure brought about by the prolonged use of two splints.

DR. MYLES presented a case for diagnosis; it presented some of the features of

ACTINOMYCOSIS BOVIS.

It had been under observation only a few days. He said that he had seen several cases of true actinomycosis bovis, and most of them had been examined microscopically so that there could be no doubt about the correctness of the diagnosis. They had been cured by extirpation of the growths. The growths appear hard, tough, and leathery, like the lichen on wood.

REPORT OF A CASE OF HEMORRHAGE FROM THE EXTERNAL AUDITORY CANAL,

by DR. C. W. RICHARDSON of Washington, D. C.

The patient was a woman, thirty-six years of age, who had at first hemorrhages lasting for a day or two, and recurring at intervals of a week or more. This continued for a period of six months. In February, 1895, the bleeding became profuse and persistent. It had no reference to the menstrual function. Examination showed no solution of continuity throughout the whole canal, or of the membrana tympani. The Eustachian tube was patulous. Pain was experienced throughout the whole history of the case, particularly in the region supplied by the trigeminus. After several months of observation he had become convinced that the patient was neither hysterical nor a malingerer. The exact source of the hemorrhage could not, however, be determined.

DR. POOLEY referred to a case of hemorrhage from the auditory meatus which at first was puzzling, but it was finally found that the blood issued freely from a perforation in the drum. Further examination showed petechial hemorrhages in different parts of the body, and the diagnosis of scurvy was made. The case terminated fatally, and the necropsy showed the usual conditions found in scurvy, including the petechial hemorrhages into the brain.

THE PRESIDENT said that the tenderness along the trigeminal distribution would seem to indicate that the case reported appeared to partake of the nature of herpes —in other words, that through some interference with the nutrition of the walls of the blood-vessels the hemorrhage occurred. A somewhat similar condition was found among gouty individuals.

DR. RICHARDSON, in closing the discussion, said that the blood had been examined, but with negative result. There was no indication of scurvy in his case, or of the hemorrhagic diathesis, for she had been operated upon previously without the occurrence of unusual hemorrhage.

HYSTERICAL AFFECTIONS OF THE MASTOID.

DR. J. E. SHEPPARD of Brooklyn, read a paper with this title. The first case reported by him was that of a girl, eighteen years of age, in rather poor health, who came to him with the history of deafness for three years, and of pain and tenderness around the right ear for the past three weeks. Bone conduction was better than aerial conduction. Firm pressure could be made over the part without causing pain. The patient was given sodium bromid, and in a few days was well. The second case was that of a young woman, twenty-one years of age, who had fallen down an elevator shaft. Recently she had felt dizzy, and had exhibited a tendency to fall backward to the right side. She complained of pain around the ear. The mastoid region appeared to be tender, but not at all edematous or swollen. A proposition to operate did not lessen her symptoms at all, and for several days he had been in doubt as to the correct diagnosis. Two *séances* of partial hypnosis produced a cure. The third case was a woman, twenty-three years of age, who stated that for the past few months, following a cold, she had suffered from pain in and around the ear, without any discharge. Examination showed no evident cause for the condition, and the diagnosis was made of hysteria, and her attending physician was advised to treat the case by "suggestion." He had been unable to learn the outcome of this case.

DR. RICHARDSON said that not long ago he had been guilty of operating upon a case of this kind. The patient was a young woman, about eighteen years of age, who had been treated six years ago for suppuration of the right ear. When seen again, the ear was once more suppurating, and there was extreme tenderness over the mastoid region. She had become hysterical as the result of grief over the death of her mother. There was no edema or redness over the mastoid, but it was well known that there were cases of serious mastoiditis without the usual signs. After waiting about two weeks, he had opened the mastoid cells, only to find them perfectly normal. The patient was, however, completely cured.

DR. MYLES referred to the case of a young lady in most comfortable circumstances, who had suddenly developed extreme tenderness in the mastoid region. The girl was hysterical, and he had some reason to suspect that she purposely irritated the ear. The girl was greatly pleased with a proposal to open the mastoid, but after consultation this was postponed, and the patient recovered without further treatment.

DR. PHILLIPS recalled a case of recurrent furunculosis of the canal, and finally of severe pain and tenderness in the mastoid. One day, she forgot to remove the articles that she had been introducing surreptitiously into the ear, and examination showed a fragment of a pin and several pieces of finger-nails in the canal.

DR. J. E. NICHOLS said that in one case which he had seen, the mastoid cells were healthy, but the patient had been cured at once by opening them. In another case in which there was an excoriation of the anterior wall of the canal, and in which he suspected that the hemorrhages complained of had been produced by picking this spot with a pin, hypnotic suggestion was only temporarily beneficial, but a proposal to operate was sufficient to effect a cure. It was not at all improbable that there might be some elevation of temperature in these cases, thus still further obscuring the diagnosis, but ordinarily this elevation would be slight.

THE PRESIDENT said that in this discussion nothing had been said about the result of comparing the two sides. In these hysterical cases in which pain was complained of on one side, there was usually as much tenderness on the other side. He recalled a case in which, at each menstrual epoch, there would be a marked edema and tenderness over the mastoid. Such a condition must be looked upon as anglo-neurotic in character.

SECOND DAY—APRIL 18TH.

PHARYNGEAL TUBERCULOSIS.

DR. ROBERT LEVY of Denver, Col., said that he had preserved records of 162 cases of laryngeal tuberculosis. Of this number, 17 showed pharyngeal tuberculosis. Ulceration of the hard palate was the least frequent. The severity and course of this affection depended upon the number and location of the areas affected. When several points of attack develop simultaneously, or there is an ex-

tensive process going on in the lung, or when the posterior wall alone is involved, extension is slow. The coexistence of syphilis he considered to be the most important modifying circumstance. The stages of pharyngeal tuberculosis depended upon the mode of infection. When the infection occurred through the lymph channels, ulceration seemed to be the method of attack; where there was a local invasion, there would be an acute pharyngitis and the development of superficial pin-head tubercles. The diagnosis was not difficult in typical cases. In those cases complicated by syphilis, the character of the ulceration might be puzzling; there would be usually slight pain, and the case would pursue a sluggish course. The finding of tubercle bacilli, the condition of the lungs and the results of treatment would enable one to make the diagnosis. Nitrate of silver, forty grains to the ounce, was useful in the early stage, when the ulcerations were few and small. , Curettage and lactic acid had given him fair satisfaction, but the galvano-cautery had proved to be the best of all the agents he had employed. Cocain spray and iodoform insufflation were valuable for home treatment. When combined with syphilis, his experience was in favor of the use of mercury in small doses rather than potassium iodid—he had been forced to the conclusion that the Colorado climate was unfavorable to pharyngeal tuberculosis. His conclusions were: (1) That pharyngeal tuberculosis occurred in one and a half per cent. of all cases of phthisis; (2) that there were two sources of infection—(*a*) local attack on an abnormal mucous surface, and (*b*) through the lymph channels; and (3) that the severity of the symptoms was modified by the site of the attack and the existence of laryngeal and pulmonary complications and the association with syphilis.

DISEASES AND TREATMENT OF THE NASAL ACCESSORY SINSUES, WITH AN ANALYTICAL REPORT.

DR. ROBERT C. MYLES exhibited some drawings taken in a darkened room in 1893 by means of transillumination. These had been presented to the Academy of Medicine in 1893. In polypoid cases he had entered the sinuses through the nose many times. About two-thirds of the cases of ethmoid disease were due to polypoid disease, and one-third to atrophic rhinitis, non-syphilitic necrosis syphilis and neoplastic growths. At the present time, he had three cases of sphenoidal empyema under treatment, and he had come to the conclusion now that the nose and teeth were about equal as casual factors of antrum disease. The simple irrigation tube and small trocar and canula he considered invaluable aids to diagnosis. Not so much depends upon the pathology as upon the extent of the pathological process. He thought it was the physician's duty in all acute and subacute cases of catarrh to employ either expectant or exploratory treatment. Exploration in antral cases is carried out by irrigation through the natural opening or through a small artificial one. There are hundreds of cases of sinusitis with muco-pus, in which there was no solution of continuity of the membrane. He had operated by almost every method that had been recommended, and all the milder cases had done well. He recalled a case which terminated fatally, in which death might have been averted by the operation suggested which the patient had refused. He had adopted the rule of operating externally in frontal sinus disease when the symptoms were profound, and were not relieved by other methods. In extreme polypoid cases, the ethmoid was rather brittle; it was almost flinty hard in the supperative cases. After removal of the middle turbinated bone it was his practice to drill or gouge an opening into the cells, and cut away as much of the cells as possible. All his cases have been relieved in this way, and some cured. The sphenoid cells were not so difficult to open as many seemed to think. He did not believe curetting the upper and posterior wall of these sinuses was safe. The cells were from one to one and a half inches in depth. He did not agree with the general surgeons that the antrum of Highmore should be treated as other diseased cavities are treated. Curetting often aggravated rather than helped the condition. Where the tooth appears to be the cause of the trouble he advised removal of the tooth, and penetration through the socket into the antrum. This method was so simple and harmless that it should be made a part of the expectant treatment.

DR. PHILLIPS said that he quite agreed with the reader of the paper regarding the etiology of antral disease. He found that the dental profession was very much inclined to follow the teaching that almost all antrum cases were due to some defect in the teeth or in the bone. In his opinion, inflammation of the antrum was not an infrequent disease, but suppurative inflammation of the antrum was more rare, He did not think it was necessary to remove a tooth if the teeth were perfectly sound; it was better to penetrate through the canine fossa. A few weeks ago he had seen a man who gave every indication of suppurative disease of the antrum. By transillumination he had found that there was a bright area on the right side, and a dark shadow on the left side. Some observers claimed that transillumination was unsatisfactory, but the reason usually was that it was not properly performed. The source of the illumination should be placed in the mouth, and the observer should note the character of the illumination beneath the eye. He would be unwilling to operate in a case with darkness on one side and light on the other, unless there were other symptoms of antrum disease. Transillumination is a useful aid, but should not be considered in itself sufficient ground for a positive diagnosis. He had found that by percussing over the the antrum in this patient tenderness had been elicited on the right side. Cocain cataphoresis was used in this case, with a current of fifteen volts. A free opening was made into the antrum and, according to the statement of the man, the operation was painless. Last summer he had seen a man who had rapidly developed an acute inflammation in the frontal sinus, following upon a violent insufflation of powder on that side. This insufflation had been done in one of the advertising quack catarrh cures in this city. An abscess suddenly developed. He had followed Dr. Myles' plan of making the incision. As soon as the opening was sufficiently large, the polypi forced themselves out through the opening that he had

made in the frontal sinus. He removed nearly half an ounce of polypoid material from the sinus. The man had been advised to come back for a second curetting, but this he had positively refused to do and, hence, it was not improbable that there would be a relapse. Recently he had been operating upon a colored cadaver, and had been surprised at the extreme smallness of the sinus.

DR. G. HUDSON MAKUEN said that a few weeks ago he had reported a case of unusual alveolar abscess with antral complications. The patient had complained first of pain around the second molar tooth in the upper jaw on the right side. After two or three days a slight sero-purulent discharge made its appearance between the gum and the tooth. A dentist who saw the case expressed the opinion that the case was one of alveolar abscess. On opening the tooth he found it apparently healthy. The tooth was devitalized and the pulp removed, but without benefit to the patient. Shortly after this, while probing, the dentist passed his probe into the antrum. On removing the tooth, a small pus sac was found, midway on the tooth. This sac was half an inch from any infection by way of the mouth, and certainly no infection could have come through the antrum. His experience had been that when a large opening was made at the floor of the antrum, the cavity did not drain through this opening unless there was an obstruction of the natural opening. He suspected that the movements of respiration caused a suction through the nose, and thus accounted for drainage taking place against the action of gravity.

DR. E. E. HOLT said he desired to express his high admiration of this paper from the standpoint of the ophthalmologist and otologist. In cases of orbital cellulitis, one was often brought in contact with the antrum of Highmore.

DR. DAY said that he had found quite a number of cases in which transillumination showed a shadow on both sides, and sometimes on one side, without any other indication of antrum disease. He had, therefore, become somewhat skeptical as to the value of transillumination in diagnosis.

DR. MYLES, in closing the discussion, said that there were thousands of people in this country who had been suffering for years from catarrh, and from antral disease, and yet they had been treated by very competent physicians. The remark that had been made about the smallness of the frontal sinus reminded him of the fact that some colored people seem to have no frontal sinus, or only a very small one. It was an easy matter in such cases inadvertently to make an opening directly into the cranial cavity while operating. In his experience, most the cavities of the nose appeared to drain by a to and fro motion of the air, due to the respiratory movements. Regarding the matter of transillumination, the speaker said that hundreds of people presented a dark shadow beneath the eyes, but in almost any case the shadow could be made to disappear by the use of sufficiently powerful illumination. There were many drawbacks to transillumination, but it was nevertheless a very valuable aid to diagnosis, and one which should not be neglected.

ACUTE OTITIS MEDIA AS A COMPLICATION OF TYPHOID FEVER.

DR. D. A. HENGST of Pittsburg read a paper on this subject. He said that when we considered the convenient pathway for microbes through the Eustachian tube to the ear, it was not surprising that this affection was so common. As a result of a collective investigation that he had made, he had received reports of 1228 cases of typhoid fever, 575 of which were from private practice, and 653 were hospital cases. There were 11 cases of otitis media reported among the former number, and 17 from the latter. Out of 389 cases of typhoid fever occurring in the Johns Hopkins Hospital, it had been reported that there were 8 of acute otitis media. It most commonly developed from the end of the second to the fourth week, or at the time when the capillary circulation was sluggish and the patient in a delirious condition. He had not been able to gather statistics regarding the frequency of mastoid complication. In connection with the question of the influence of quinin on the production of otitis media, it should be noted that one physician who reported 175 cases of typhoid fever, with 5 of otitis media, stated that it was his practice to use large doses of quinin during the stage of hyperpyrexia. The most usual method of extension was from the mouth or naso-pharynx into the ear. The chief symptoms of this complication were deep-seated pain and tenderness on pressure below the auricle, a feeling of pulsation and tinnitus. In some cases of typhoid fever there is a severe neuralgic pain in the ear, but there is no deep-seated pain below the auricle, and the accompanying changes observed on examination with a speculum are not present. If seen early, or in the hyperemic stage, leeches should be applied to the tragus, and the instillation of a warm solution of boric acid will often be followed by prompt relief. The ear should be frequently cleansed, and as soon as bulging is observed, the membrane should be incised. The parts should be kept thoroughly aseptic afterward. In nearly all cases of otitis media complicating typhoid fever, good hearing has been the result.

THE PRESIDENT said that he certainly thought acute inflammation of the middle ear was a very rare complication of typhoid fever. He did not believe in the use of moist heat in the early stage of the inflammation, because this tended to break down tissue. In his experience, dry heat relieved the pain quite as well as moist heat, and was free from the objection just stated. He would also favor a resort to incision of the drum membrane before the membrane bulged, as the object was largely to secure depletion. A great variety of germs appeared to be responsible for such an inflammation of the middle ear.

ULCERATION OF THE NASAL SEPTUM.

DR. T. C. CHRISTY of Pittsburg read a paper with this title. He said that the onset of the trouble was usually attributed to taking cold. It was ushered in by pain over the frontal region, corresponding to the obstructed nares, and by pain in one or both ears. There were usually signs of acute inflammation over the obstructed nares. In the majority of cases, the lesion originated on the septum, and was communicated to the other parts by the swollen

soft tissues. In one case there was inflammation of the septal cartilage. In no case was there destruction of the hard palate, as so frequently occurred when the septum nasi was involved. The galvano-cautery is not a valuable agent in the treatment of lesions of this character. Tubercular ulcers are, as a rule, secondary, slow in development, and painful. Malignant ulcerations are painful, and often have an inflammatory appearance. His observations had led to the conclusion that the prolonged residence in a high altitude was, in some instances, pernicious to the delicate mucous covering of the septum nasi.

DR. ROBERT LEVY said that he must take exception to the statement that prolonged residence in high altitudes was pernicious to the nasal mucous membrane. In an experience of ten or twelve years in a region situated over one mile above the level of the sea, drying, crusting, and annoying nasal symptoms had been observed only among those who had recently arrived. After a time Nature met the demand for rapid evaporation of water at such high altitudes, but at first these individuals usually suffered from dryness and excoriation from picking the dried secretions.

DR. ARTHUR G. ROOT of Albany said that he knew of no disease which was so amenable to treatment as syphilis, whether in the nose or in any other part of the body. He was firmly convinced that many physicians were disappointed with the results or their anti-specific treatment because they expected marvelous benefit from simply giving of these remedies without taking into account the general condition of the patient, and what could be obtained by careful hygiene and good nourishment. Some of these patients would do better for a time if the anti-specific remedies were suspended and reliance placed entirely in hygiene and diet.

DR. SNOW said that in these cases of tertiary syphilis, much of the trouble in managing the case was due to insisting upon the use of mercurials instead of trusting to potassium iodid. In cases of ulceration of the septum, not due to syphilis, he had found deliquesced chromic acid acted admirably.

DR. HOLT said that he desired to heartily indorse what had been said by Dr. Root about the hygenic treatment of syphilitics. In many cases he had gotten better results from sodium iodid than from potassium iodid, the former being better tolerated by the stomach.

DR. W. B. JOHNSON of Paterson, N. J., thought it was somewhat dangerous to undertake to feed up a syphilitic patient and suspend medication, while the disease was actively engaged in dragging him down. He was positive that the combination of potassium iodid and mercury often acted better than iodid alone.

DR. MAKUEN said that in the past year he had had two such cases in which the diagnosis had been rather difficult. The first was a young women in whom there was no suspicion of syphilis. A pathologist reported that the case was one of round cell sarcoma, but the operation having been unavoidably delayed, the patient was put on anti-syphilitic treatment, and was speedily cured. It another case, that of a man who denied syphilis, he was still in doubt, but was trying anti-specific remedies.

DR. LEVY said that he was reminded of a case in which two microscopists had independently examined the case, and had reported it to be one of round cell sarcoma. This patient had had many of the symptoms of a malignant growth, yet she was speedily cured by anti-syphilitic treatment.

DR. CHRISTY said that the object of his paper was to emphasize the importance of preserving, in every way possible, the integrity of the mucous membrane of the nose in all cases.

THE MASTOID AND INTRACRANIAL COMPLICATIONS OF MIDDLE-EAR SUPPURATION.

DR. EDWARD B. DENCH of New York, read a paper with this title. In describing the operative treatment of mastoid disease, he said that he considered that a mastoid operation, done with proper attention to technic, was perfectly justifiable as an exploratory procedure, and was devoid of danger. He had operated upon 105 cases of mastoid disease, of which five had died. Three of these were cases in which meningitis was the cause of death, and had existed at the time of the operation. The other two were due to prior cerebral abscess. In this large number of cases, therefore, not a single death could be attributed to the operation. An absolutely perfect asepsis should be secured, as much care being taken as in preparing for an intraperitoneal or an intracranial operation. The incision was ordinarily made about half an inch beyond the auricular attachment, but personally he preferred to begin it at the tip of the mastoid, and carry it toward the insertion of the mastoid, leaving a space of about one-eighth of an inch. The incision should be carried up toward the superior part of the auricle. Within the triangular space bounded by two tangents, one drawn to the superior wall, and the other drawn to the posterior wall, and the curvilinear line of the meatus, lay the point of safety. Drilling should be abandoned, and the opening into the bone made by a chisel. So far as he knew, Dr. E. Gruening had been the first to lay down definite rules for the systematic opening of the mastoid. The first objective point in the operation should be the mastoid antrum. After a probe had been passed from the antrum into the middle ear, it was safe to remove the tip of the mastoid or take what further steps seemed necessary. The *additus ad antrum* should be carefully curetted, for otherwise the discharge is apt to persist. If the incision were made in the usual place, the ear was apt to remain for a long time pushed forward, and deformed, which was not the case when the incision was made as he had recommended. The bony cavity alone should be packed, the external wound being left free from the dressing. If there were no pain or elevation of temperature, he often allowed the first dressing to remain unchanged for five or seven days. If the lateral sinus should be opened, the hemorrhage could be easily controlled by firm packing with iodoform gauze.

The speaker also reported a successful case of operation in a patient having leptomeningitis. An incision had been made from the tip of the mastoid over the ear to the external angular probes of the frontal bone. He had then

entered the middle cranial cavity through the thin portion of the squamous bone. There was a distinct meningitis present at this time. There was no purulent accumulation found in the region of the roof of the tympanum or the lateral sinus. The wound was packed, except in the region of the tympanic roof. The man had had no further trouble, and recovery had been prompt. In doing an exploratory operation, an ample cutaneous incision should be made over the external meatus.

DR. R. C. MYLES said that during the last few years he had been studying this subject, and had operated between one and two hundred times on the cadaver. The points made regarding the method of making the incision and reaching the antrum were particularly valuable. He raised the question as to whether we should chisel at the upper level of the osseous margin or at the center. His plan was not to destroy the upper posterior part, but to expose the cells just posterior to the osseous canal, and extend the opening in a spiral manner upward, inward, and forward through the antrum into the attic. The approach to the lateral sinus could be usually determined by the great hardness of the bone and the bluish color of the part.

DR. W. B. JOHNSON said that there were times when it was very difficult to secure absolute asepsis. He had been greatly interested in the case of leptomeningitis which had recovered after operation, yet he felt that it would be extremely rare for recovery to follow in cases in which meningitis or cerebral abscess existed prior to the operation.

DR. RICHARD FROTHINGHAM of New York, remarked that some very good operators still used the drill.

DR. DENCH, in closing the discussion, said that some good operators still used the burr, but this was very different from the old hand-drill to which he had referred.

REVIEWS.

THE DISEASES OF CHILDREN. By J. LEWIS SMITH, M.D., Clinical Professor of Diseases of Children, Bellevue Hospital Medical College, etc. Eighth edition. Pp. 987, with 273 illustration and 4 plates. New York and Philadelphia: Lea Bros. & Co.

THE general character and scope of this work is so well known that it will be necessary only to refer to the changes which have been made in this new edition. The work has been considerably enlarged, and several entirely new chapters appear. On page 27 are interesting tables concerning the temperature, pulse, and respiration of healthy infants, which are a valuable addition to our knowledge upon these subjects. It is striking that so slight a difference was found between the rectal and the axillary temperatures of early infancy, this being only 0.2° F., and even during the second year it is only a little over 0.5° F.

The early chapters upon general subjects appear practically unchanged.

The article on diphtheria contains a number of new pages, and is brought down fairly to date. The author might, with propriety, have omitted more of the earlier pages of this article. Concerning antitoxin he speaks in guarded language, and one is led to believe that he is not yet convinced of its value. In concluding his paragraph upon this subject, he says: "It is seen that statistics thus far are favorable for the antitoxin treatment, but it must be recollected that the type of the microbe diseases frequently changes, so that the experience of several years is often necessary in order to determine the full value of a remedy."

Among the new articles, we note a chapter upon cretinism. A whole section has been added upon diseases of the blood, contributed by the late Dr. F. M. Warner, and another section upon the diseases of the heart and circulation. All of these chapters add materially to the value of the book.

The principal addition to the work, however, consists in the introduction of chapters by Stephen Smith, M.D., upon the surgical diseases of children. These relate largely to operations, and it is really questionable whether anything is gained by adding them to the text-book. The illustrations are very familiar, and most of them are found in text-books upon general surgery. There seems to us to be no special justification for a full description of such an operation as that for strangulated hernia, for instance, with cuts of instruments employed, in a work upon diseases of children. After looking over these surgical additions, it must be confessed we would have been better pleased if the book had been kept a medical one.

Many illustrations relating to medical subjects have been introduced which add materially to the elucidation of the text.

Like its predecessors, the general make-up of the book is exceedingly satisfactory; the paper and type are all that could be desired, and the new edition is likely to hold its own among the leading text-books on Pediatrics for the American student.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDED MAY 31, 1896.

BOARDS CONVENED.

Board convened to meet in New York City, May 27, 1896, for the physical examination of candidates for appointment in revenue cutter service. Surgeon W. A. Wheeler, chairman, Passed Sssistant Surgeon J. H. White, recorder, May 25, 1896.

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 6, 1896.

June 2.—VON WEDEKIND, L. L., surgeon, ordered to the Naval Academy.

June 3.—SIEGFRIED, C. A., surgeon, detached from the "Columbia" and ordered to the "Massachusetts."

June 3.—DERR, E. Z., surgeon, detached from the "Raleigh" and ordered to the "Columbia."

June 3.—BEYER, H. G., surgeon, detached from the Naval Academy June 5, and ordered to the "Raleigh" June 6.

June 4.—GUEST, M. S., passed assistant surgeon, detached from the "Constellation" June 8, and ordered to the "Massachusetts" June 10.

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ORIGINAL ARTICLES.

NOTES ON INGUINO-SCROTAL CYSTS.

BY THOMAS H. MANLEY, M.D.,
OF NEW YORK.

PERHAPS there is no class of lesions, attended with an intumescence of structure, so localized and easily defined by both inspection and touch, in which, through want of a correct appreciation of the underlying pathology, so many errors are committed in diagnosis as in scrotal swellings. Cystocele of the cord, which was being regularly treated by a truss, to the injury and great discomfort of the patient, has come under my notice more than once. This, when advancing far down into the scrotum, has often been tapped and drained, under the supposition that a hydrocele existed, while, as a matter of fact, the mass was entirely outside the *tunica vaginalis*. A serous cyst had simply been evacuated.

During the month of December last, a case came under my care in which the first physician called had ordered methodical poulticing of the scrotum, for "orchitis." The second practitioner who saw the case, recognized from the grave constitutional disturbances that there was another trouble. I found extensive urinary infiltration, with impending gangrene of the scrotum. Perineal urethrotomy, with free drainage, now availed nothing, the patient sinking from blood-poisoning, some days later.[1]

In June, 1894, a letter-carrier came under my care, suffering from a great enlargement of the left testis. When first seen, the scrotum had been repeatedly painted with iodin tincture, for supposed orchitis. Examination and subsequent operation proved the case to be one of primary sarcoma of the testis, involving the spermatic cord and spreading far up into the retroperitoneal lymphatics.

In the summer of 1892, a case entered my service, which was supposed to be an abscess of the scrotum. The pouch had attained a massive volume, being red, edematous, and sensitive. A minute black speck indicated a point at which the tumor must soon burst. The constitutional symptoms were most pronounced, but what first attracted my notice was the persistent fecal vomiting, with a history that his bowels had been locked for six days, and that he had suffered the greatest agony from "cramps." Poultices over the scrotum and the free use of morphin had been the basis of treatment. A free incision exposed four inches of rotten intestine and the sac distended with feces. He died the same day.

Some years ago, a young woman came under my care, who for three days had been treated for a bubo in her right groin. Her former history was rather indefinite. She, however, had had luetic disease, hence had been freely plied with specific treatment and topical applications. But symptoms of strangulation were unequivocal. Operation revealed the trouble to be an old epiplocele, down beside which a knuckle of intestine had slipped and was nipped. Her recovery was uneventful after kelotomy.

Sero-cystic or myxomatous masses, neoplastic or adventitious, are common in the male infant along the funo-testicular tract, and are occasionally seen in the terminal segment of the unclosed diverticulum, known as Nuck's canal in the female. In either instance the tendency is to mistake them for hernia and apply a truss for the cure of an infirmity that never existed.

On the 30th of March, 1896, a boy, aged four years, was brought to me for the radical operation for hernia. On examination there were so many complex features in the case that I was somewhat undecided whether there was a simple cyst present or a cyst complicated with hernia. He had been treated off and on with a truss for two years, but latterly, the pain it provoked was so great that it had to be discarded. On free incision, a thick, tough membranous bag was reached, intimately adherent to the elements of the cord. This was enucleated, when its pedicle was traced up the inguinal canal to the inner-ring, ligated and divided. It contained sero-myxomatous material. No trace of hernia was present.

A knowledge of the diversified pathological elements which enter into the composition of these inguino-scrotal tumors, opens the way to a correct interpretation of their manifestations and diagnosis. In the young their tendency is toward spontaneous cure, though after adult years are attained, radical surgical measures, in appropriate cases, are at once the safest and most permanent in results. In order, however, that we may understand the various types of disease present, a subdivision or grouping is necessary. In making a classification of inguino-scrotal tumors or enlargements, my purpose will be rather to group them, from a clinical than a strictly anatomical or path-

[1] This case was reported in detail in *Atlanta Med. Monthly* for April, 1896.

ological standpoint, entering with any degree of fulness, only upon cystic disease and vaginal hydrocele.

1. Cystic disease of the spermatic-cord, round ligament, or testis ; with hernia or without it, in the young.

2. Hydrocele—Effusion into the tunica-vaginalis testis. Cysts of epididymis and cord in adults. Simple and complicated.

3. Tumors of the testis—Infectious and malignant.

4. Scrotal enlargement from urinary infiltration.

5. Circocele and Varicocele.

The formation of cysts in the external genital structures is encountered with the greatest frequency at the two extremes of life. In the infant male we find cystic bodies in varying situations from the point where the various structures emerge at the internal ring to the point low down where the fascia spermatica spreads out, to overlap the vas deferens as it leaves the head of the epididymis. They are of variable dimensions, and firm to the touch. Cystic formations in the spermatic-cord or head of the testis are clinically allied with hydrocele, though pathologically different in many important particulars. It is important to be familiar with them, inasmuch as when they develop within the inguinal, or the canal of Nuck, they present many features similar to hernia, and when located in the lower segment of the spermatic-cord or the head of the epididymis, they may be difficult to differentiate from hydrocele. It is important to do this, because, their treatment must be widely different from hydrocele. Cystic disease in this situation, of the neoplastic variety, is of two kinds; one, the simplest and most benign, is primary and uncomplicated ; the other is heterogenous in structure with formations attendant as a degenerative change in various infectious, specific, or malignant diseases of the testis or epididymis. Only the first variety can be considered here.

As they are usually painless in the beginning, it is only when they have attained considerable volume, drag on the cord, or produce painful pressure, that patients become aware of their presence. In all cases this growth commences above the testis. A knowledge of this fact would greatly aid in diagnosis, if the patient were seen early. As it is, however, no reliable information can often be derived on this point. Until recent years they were generally confounded with, and treated as hydroceles. No free dissection of them was permissible, and then nothing more than the common, unsatisfactory, and not infrequently mischievous, tapping was resorted to for their relief or cure. Like hydrocele they never, when large, undergo spontaneous cure in the adult, but produce serious degenerative effects on the genital apparatus by pressure. A close etiological relation seems to exist between these neoplasmata and those so commonly found in the female pelvic organs.

The pathology of these masses is not clear, though we may infer from their anatomical elements and their mode of development, that their occurence is attributable mainly, to two independent factors. It is probable that these distinctly different sources first led Paget to group them in separate divisions. The first he designates "sacculations," being retentions in obstructed canals or tubes, and the second, after Rokitansky and Simon, he sets down as "autogenous cysts," they being dependent on proliferation of the primary anatomical elements of which the parts are composed, and from which they grow. Virchow and Duchesne on the contrary classed them all as hygromata, or serous tumors succeeding dilated passages. Senn, makes no special classification of these formations, only grouping serous cysts of every description into two classes, within the first of which this variety would come.

The views of Davis[1] on the complex character of these strike one as sound and sensible. He says: "Their origin is more or less obscure. It is comparatively rare for them to be simple; they are more often complex and it may be difficult to say to which class they belong," and he adds most truly, that "there seems to be an exaggerated opinion prevalent of our ability by the microscope alone to determine the character of the growth." The author, with most commendable emphasis, calls into question the use of the microscope as a sole reliance in their diagnosis.

Barbè named them *Hydrocele enkystiques du Cord Spermatique.* Symme applied a somewhat similar term to those in the infant. Jourdan,[2] describes, at length, several types of these in the adult. Clements[3] of Dublin, and Moxon of England, set them down as hydrocele of the spermatic-cord; others again regard them as cystic tumors, or spermatoceles. Another author[4] describes certain cysts here of a rheumatic origin.

The pathological anatomy of these cysts has

[1] "Diseases of Male Organs of Generation." By G. G. Davis, M.D., Ashurst's Encyclop. of Surgery, vol. vii. p. 990.

[2] *British Med. Jour.*, August 28, 1878. "Notes on Peculiar Varieties of Encysted Tumors of the Spermatic Cord."

[3] *Dublin Journal of Med. Sciences and Path. Trans.*, 1893, vol. iv, p. 238.

[4] Deux Kystes Rheumatismaux du Cord Spermatique. *Jour. De l'Anat, Path.*, 1885, iv, p 233.

attracted the attention of many of our most noted investigators, though their conclusions are discordant as to their origin. Cruveilhier, in his atlas on morbid anatomy, exhibits several cases of imperfect closure of the *processus vaginalis* throughout its entire length; in some, the canal being closed in four or more places by fibrous bands. Le Dran, Meckel, Bergman, and Scarpa, report many similar dissections in the newborn. Curling, in his large experience, mentioned several similar conditions, and quotes from Gosselin and Richet descriptions of cases of serous cavities along the cord.

In the opinion of Terrillon many of these serous formations start from the remains or vestiges of serous tissue, lying latent and unabsorbed, which, later in life, through the influence of cold or irritation, furnish the fluid necessary for distention. The remains of the Wolffian bodies or the organs of Geraldes, in the neighborhood of the epididymis, produce within the scrotum a similar condition. M. Duplay,[1] in an exhaustive review on the subject, was inclined also to the view that they depended on the residuary elements of the serosa and Wolffian bodies. De Mieux,[2] later, supported this theory, somewhat modified, to agree with Colnheim's law of neoplastic growths. According to Monod and Terrillon:[3] "Encysted hydrocele of the cord, and cysts of the cord, are those liquid or semi-liquid masses, seated along the spermatic-cord, but independent of the epididymis or testis." They are, as a rule, lined by flat epithelium, have a thin, transparent investment, and are not commonly adherent to adjacent parts. Their volume varies. These tumors are mobile and transparent, and seldom attain a considerable size. Sometimes, they are lodged entirely within the inguinal canal, and may be mistaken for herniæ, or they are more or less movable. They may be accompanied by a hernia, acquired, infantile, or congenital, or a retained testis. Routier and Gosselin[4] have recorded cases, in which blood was found in their interior, after a trauma. When complicating a hernia they occupy the most diverse relations to the viscera. Their contents differ widely in their physical, chemical, and histological characters. In some, an opalescent fluid containing spermatozoids, is evacuated. Many such cases have been reported by Liegegard, Broca, and Robin.[5] Duplay designated them: "peritoneo-funicular hydrocele;" in contradistinction to the "vagino-peritoneo-hydrocele," in which latter the fluid extends into the cavity of the tunica vaginalis.

Although the greater number of these cystomata are formed in the myxomatous elements of the cord, some few are found to spring from the epididymis, and hence, like hydrocele, begin to enlarge from below. According to Broca, Liston and Velpeau, in 1843, first discovered spermatozoids in the fluid elements of these cysts.[1] Gosselin noticed that they were the most liable to appear at that epoch in life when the normal function of the secretion began to decline, a phenomena not altogether unlike the cystic involution of the mammary gland in the female at middle life. How these tumors may originally form, or from what precise anatomical elements they first commence to grow probably must remain largely a matter of speculation. Although the clinical fact is that they are in some manner dependent on degenerative changes perhaps influenced in their incipiency and ulterior course by heredity, the constitution of the patient, or his occupation and habits.

After their growth has begun their advance is attended by all those changes in adjacent parts which we observe in the evolution and advance of any benign formation. As their walls encroach on neighboring tissues, their most vulnerable histological elements give way and disappear by absorption. Those growths arising from the epididymis, it will be observed, are often within the *tunica-vaginalis*, their presence producing a moderate serous *vaginitis-scroti* maintaining an uninterrupted pressure on the nude, defenseless testis; in which event, we may have one fluid bag within another. As the greater part of the hilum of the epididymis is lodged outside the tunica-vaginalis, when sperm-elements are found in hydrocele it has been supposed that they had become intermixed there, in consequence of a cyst of the epididymis having ruptured into the cavity of the *tunica-vaginalis*.

The origin of these growths in the epididymis has been explained variously by different authors. With some it is believed that they develop in consequence of a dilatation of the tubular coils of the epididymis. Their anatomical elements would lend some support to this theory. The inner layer of these tumors, in the greater number, is composed like the normal canals of the epididymis of stratified epithelium, and the admixture of spermatozoids would imply some direct connection

[1] "Des Collections Serouse et Hyd. du Cord," *These de Paris*, 1865.
[2] "Etude Sur. l. hydrocele der Cord Sperm." *These de Paris*, 1876.
[3] "Maladies Du Testicule," p. 716.
[4] *Hæmatocele Vans une Kysle du Cord. Prog. Med. t.* xii, p. 533.
[5] *Gazette Des Hôpitaux*, 1864.

[1] Broca, "Traité des Tumeurs," 1886, t. ii, p. 291.

with the seminiferous ducts. Monod has made a careful study of this subject and the anatomical elements of the cystic structures. In order to determine the relation of the tumor to the epididymis, he has injected mercury of the temperature of the body directly into the gland elements, but in no instance did he find any pass into the tumor.

Follin[1] has demonstrated that the *debris* of the Wolffian body in the female is represented by the body of Rosenmuller in the male, or the so-called hydatids of Morgagni, which form a row of bud-like projections on the head of the epididymis. From the vestiges of fetal remains, in his opinion, we may expect that many of these cysts advanced in this direction, especially as the capsule is thinner in this situation. In those taking this direction—the extra-vaginal route—we will find them attaining the greatest volume.

In one of my own cases, a sailor of fifty years, I removed, preliminary to decortication, twenty-six ounces of fluid. Stanley reports one as containing 1600 grams, and Curling one, having within the sac 2000 grams. The walls of these cysts vary in thickness and, as a rule, are intimately adherent to all the elements of the spermatic-cord, especially the efferent vessels of the testis. The color and consistence of the contained fluid varies greatly. Spermatozoids are not constant. In recent, small-sized, simple cysts, the fluid is opalescent and slightly mucoid. These latter, generally contain spermatozoids; but in the larger, more chronic, which are multilocular, degenerative changes have destroyed the germ-cells and various phases of tissue metamorphosis are encountered in their contents the investing membrane and neighboring tissues. These hygromata in serous cysts of the epididymis are seldom witnessed of such volume as to be readily recognized or differentiated. Terrillon said of them, that from the standpoint of the anatomist, they were commonly seen, but clinically, they were comparatively rare. Hochenogg, Professor Albert's assistant, at Vienna, in the examination of 6000 surgical cases coming to the clinic, met with but three cases. During the three previous years antedating the period when these statistics were taken, in a larger number of patients none whatever were found.

From what can be gathered from the scattering cases reported and those whose opportunities for observing these genital cysts are fairly large, it may be affirmed that those which lie along the course of the inguinal canal, arise either through an occlusion of the *processus-vaginalis*, or a neoplastic formation. Those in the spermatic-cord are the most common. The next in order of frequency, are those which rise at the hilum of the epididymis, directly from its capsule or parenchyma, and are extra-vaginal. Those are most rare and least in volume which bud from the head of the epididymis and are lodged side by side with the testis, within the *tunica-vaginalis*.

[1] L'epididymis, *Cong. de Chir.*, 1885, p. 556.

TOO MUCH AND TOO LITTLE HAIR.[1]

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It is possible to have too much of even a good thing, and therefore one can have too much hair, especially when that *one* is a woman. It is of facial hirsuties in women that I would speak this evening. We are not now concerned with any other form of too much hair, and will say nothing of those long beards that are some mens' pride, which they can tie in a knot, and put in their pockets, nor of those freaks of dog-faced men, nor of anomalies of hair growth as to time, such as puberal hair occurring at an early age. In the first part of my paper I shall confine myself to a study of the etiology and treatment of hirsuties in women. Then by way of contrast I shall say something about loss of hair.

General impressions are often misleading, while a study of one's case-book is instructive. It was with the wish to find out what my cases of superfluous hair in women had to teach me that I have studied the first one hundred cases occurring in my private practice. As the results were of interest to me, I venture to give them, hoping that they will not fail to be of interest to you also. The cases were taken as they came, and were in no way selected. As would naturally occur, eighty-two of the women were of the mixed race that we call American, as we have no term for a native of the United States other than this. Fourteen of them were Hebrews, though born in the United States. The Jews so rarely intermarry with the Christians that their race is comparatively pure, and worthy to be placed in a special class. Two women were Germans; one was an Irish woman; and one was a Welsh woman. Fifty-eight of the cases were in single women, and forty-two were married or widows.

In ninety-seven cases the age at which the hair first showed itself was noted. The earliest age re-

[1] Read before the Detroit Medical and Library Association, April 6, 1896.

corded was thirteen years, and there was only one who said that she was over fifty when the growth began. There were eleven cases that began at the eighteenth year, and that was the largest number for any one year. A woman passes through certain more or less well-defined periods in her life, determined by her menstrual history. My figures studied in relation to these periods are interesting. They are as follows:

Hypertrichosis began	betw.	the	13th	and	15th	year	incl.	in	3	cases.
"	"	"	15th	"	20th	"	"	"	29	"
"	"	"	20th	"	30th	"	"	"	38	"
"	"	"	30th	"	40th	"	"	"	17	"
"	"	"	40th	"	50th	"	"	"	9	"
"	"			at over	50th	"	"	"	1	case.

We thus find that in seventy of the cases the age at beginning was under thirty.

There is a general impression that there is a connection between the growth of hair on the face in women and disorders of the reproductive organs. My notes show uterine or menstrual disorders were found in but four of the married, and in but nine of the unmarried women. Of the married women ten had no children, seven had one child each, and seventeen had two or more children. As to the special symptoms pointing to disorders of the reproductive organs amenorrhea was found in two cases; dysmenorrhea in four cases; irregular menstrution in three cases; uterine displacements in two cases. The menopause had occurred in eight cases.

Of the one hundred women, sixteen were decided brunettes, and six were decided blondes. The rest were of the medium complexion, that is by far the most common.

In fifty-five cases there was a strong family tendency to hirsuties, as is shown by the following table:

A history of facial hirsuties	In	mother					in	14	cases.
"	"	"	"	"	"	"	and grandmother	"	2	"
"	"	"	"	"	"	"	" mater'nl aunt	"	3	"
"	"	"	"	"	"	"	mat. aunt and sister	"	1	"
"	"	"	"	"	"	"	and sisters	"	3	"
"	"	"	"	"	"	"	sisters and daughter	"	1	"
"	"	"	"	"	"	"	and paternal aunt	"	1	"
"	"	"	"	"	"	"	and others of family	"	1	"
"	"	"	"	"	"		maternal aunt	"	5	"
"	"	"	"	"	"		paternal "	"	2	"
"	"	"	"	"	"	patrnl. aunt and anc'st'rs		"	2	"
"	"	"	"	"	"	patrnl. aunt and daught'r		"	1	"
"	"	"	"	"	"	sisters of patient		"	13	"
"	"	"	"	"	"	sisters and maternl. cousin		"	1	"
"	"	"	"	"	"	women, both sides family		"	5	"

In twelve cases it was said that the patient resembled in her general physique the father. In three of these cases there was also a history of other female relatives having had facial hirsuties, leaving nine cases in which only the paternal form of heredity manifested itself. But very few of my cases showed other evidences of masculinity, such as depth of voice, or coarseness of figure, or manner, greater than was to be found in women of their own grade of life.

The upper lip was affected alone in fourteen cases. The upper lip and chin were affected at the same time in thirty-six cases. The chin was affected alone in five cases. The chin and cheeks were affected together in eight cases. The upper lip, chin, and cheeks were all affected in twenty-three cases. The hair on the whole body was unusually developed in two cases. There were coarse hairs on the chest in two cases. In the other ten cases the location of the growth was not noted. In no case was there any hair on the lower lip except a very few, usually not very coarse ones, just under the middle of the border of the hp.

The greatest number of hairs I have ever removed from one patient is 12,905 in the course of several years, the patient being a young woman who had an unusually heavy growth of hair. Of course this number is not by any means made up exclusively of new hairs, but includes many returns of hairs that had been removed. In eleven cases I have removed 1500 hairs and over, and all of these women were under thirty years of age, and the highest numbers have always been found in the patients in whom the growth began before the twentieth year.

It does not seem to me that we are justified in drawing any special inference from the fact that eighty-two per cent. of the cases were Americans. That would naturally follow because the data were gathered in an American city. It does seem to me significant that fourteen per cent. of them were Hebrews, because my practice is not especially among the Hebrews. We would expect, however, that women with the dark skin and hair of this race would have a tendency to hirsuties. Nor can we draw any inference from the civil condition of the patients. Among the fifty-eight unmarried women were a number who were so young they would hardly be expected to be married, and if these were thrown out, the number of the married and unmarried would be about the same.

It is a most striking fact that about one-third of the cases occurred before the twentieth year, and seventy per cent. of them occurred before the thirtieth year. This, it seems to me, points very strongly to the inference that the growth of facial hair in women is analogous to what occurs in men, that is, it begins at about the age of puberty and during early womanhood. It is, therefore, an inborn peculiarity, an inherent condition of the make-up of the skin, just as ichthyosis is in some people. That only ten per cent. of the cases developed after the fortieth year seems to show how comparatively little the cessation of menstruation has to do with the growth of the hair. It may well be that my statistics are as

misleading as many statistics are, and that it is rather because young women seek relief from their misfortune that the number of them is so large, than that they really are so much more prone to have hair on the face.

The number of women with disorders of the reproductive organs was no greater than would be found among any other one hundred women, only thirteen giving any account of them. Of the forty-two married women or widows, I have notes as to the child-bearing capacity in but thirty-four. I must confess that I am skeptical in regard to the inference to be drawn from a woman not having children. In these days so many women refuse to assume the responsibilities and joys of motherhood, that it is hard to say whether the childless women are so of choice or of necessity. Assuming that the women in my tables were childless of necessity, the fact that ten out of the thirty-four had no children, and seven had only one child, certainly bears out the prevalent idea that women with hirsuties are not so prolific as those who have not hirsuties. The number of brunettes was a little more than 2½ times that of the decided blondes. This sustains the prevalent idea that the darker the skin the more prone it is to the growth of hair.

It is when we come to the consideration of the family tendency to hirsuties that we have the most important etiological factor in causation. This is shown by the fact that in fifty-five per cent. of the cases the deformity was hereditary. Of these $66\frac{3}{11}$ per cent. were on the maternal side, only about 9 per cent. were on the paternal side, while $23\frac{7}{11}$ per cent. were probably also hereditary, as the deformity occurred in the sisters of the patients. If we add to this fifty-five per cent. the nine per cent. in which the patient was said to resemble the father, there being no other evidence of heredity, we have sixty-four per cent. of the cases in which heredity may fairly be regarded as the cause of the trouble. From this we are justified in concluding that hypertrichosis in women is very largely a matter of heredity, especially on the maternal side; that it has comparatively little to do with disorders of the reproductive organs; that brunettes are more prone to it than blondes; that a woman with hirsuties is a little less apt to bear children than one who has not hirsuties; and that the most frequent age for the appearance of the trouble is between the sixteenth and thirtieth year.

The upper lip is the most frequent site for the growth of hair, it showing the growth in seventy-three per cent. of the cases. The chin is a close second, with a record of seventy-two per cent., so that we may say that the lip and the chin are affected in equal degree, except that the lip alone was affected in fourteen per cent. of the cases, while the chin alone was affected in only five per cent. of the cases. The cheeks were affected in thirty-one per cent. of the cases, but were never alone the site of the growth. The whole of the usually bearded part of the face in men was affected in these women in twenty-three per cent. of the cases. Here again we find an analogy to what obtains in men in whom it is not uncommon to see a comparatively scanty growth of hair upon the cheeks, and the heaviest growth upon the lip and chin.

As to the treatment it is easily stated, there is but one method of treatment, and that is by electrolysis. It is scarcely necessary for me to describe the operation for the destruction of superfluous hair by electrolysis. It is one of the glories of American medical science that one of our physicians, Dr. Michel of St. Louis, introduced it to the world, and another of our physicians, Dr. Hardaway of St. Louis, brought it prominently before the medical profession as the means for relieving many a distressed woman of a burden heavy to be borne. Happily both of these worthy-to-be-honored men have reaped a rich reward for their ingenuity.

The question is often asked me: "Is the operation a successful one?" I always answer without any hesitation: "Yes, undoubtedly." There is no case, however bad, that cannot be permanently cured. It is simply a question of perseverence on the part of both the patient and the operator. It must always be borne in mind that it is impossible for any one to strike the hair papilla right every time, and so there will be a certain number of hairs return. As the operator grows more skilful the number of returns will become less. It is always my custom to tell my patients, when they first come to inquire about the removal of superfluous hair, that they must expect a certain number of hairs to come back. Another thing to be borne in mind is that in young women it is impossible to say when the new hairs will cease from appearing, and it is well also to tell them this, so that they will not think that all the hair that they see coming, after a series of operations, is a return of those taken out. It is this appearance of new hairs that has given rise to the notion that the operation stimulates the growth of hair. I have never seen any evidence of this. Indeed Giovannini has shown that the electrolytic action is not confined to the immediate vicinity

of the hair papilla operated on, but goes to a certain degree beyond it. This fact tends to show that the operation is rather inclined to discourage the growth of new hairs.

The best cases to work on are those in which the hair occurs late in life and is limited to only a few coarse hairs. By careful and slow work it is quite possible to destroy nearly all the hairs at the first sitting. When we have a great many hairs to destroy and the patient is naturally impatient to get the hair off as soon as possible, it is better to work faster, even if not with as much exactness, and to go over the face again and again until all are destroyed. Another question that is often asked is: Will the operation scar the face? To this may be answered that in the vast majority of cases, if the work is done carefully, no perceptible scars will be left. Almost all skins will show some small punctate scars left by previous operations if the skin is put on the stretch in a strong light. This is practically *not* scarring, as the little marks cannot be seen under ordinary conditions. There are some skins that bear the operation so well that even these small scars are not to be seen. On the other hand there are some skins that will scar, do what you will, and it is impossible to tell beforehand which sort of a skin you have to deal with. In almost all cases the upper lip will scar more readily than any other part of the face. If too strong currents are used, and these are allowed to work for too long a time; or if the attempt is made to enter a follicle for the second time at the same sitting; or if the sittings are had at too short intervals; or the hairs are taken out in too close proximity to one another; scarring may be expected. Only in one of my own cases have I made scars that were at all perceptible, and that was in the soft, fine skin of a Jewess, whose skin would scar, whatever I did. I have seen several women who have been operated on by others, in whom the scarring was disfiguring. But as a rule, this result is due to bad technic, and is not a reproach to the operation.

There is nothing so difficult for a man in my line of work as to follow up his cases, and to write at the end of his case-history, the final result of his work. As showing what results may be expected to follow the operation, let me briefly give you some notes from my case-book:

CASE I.—A Jewess from whom I removed nearly 8000 hairs in five months. After six weeks, when most of the hairs that were to come back had probably put in an appearance, she wrote me that she had pulled 1700 hairs. When I stopped work on her the face was by no means clear, but she was used up by her frequent journeyings to and from the city.

CASE II.—A woman of forty-four years, from whom I removed 2300 hairs. She comes to me about once a year to have a few straggling new ones removed, the tendency to hair-growth not having ceased.

CASE III.—A young woman of twenty years, from whose face I removed 6500 hairs in a long series of sittings during some four years. After a pause of five months I took out 580 hairs in another series of sittings. This left her face free of all hairs of any size. I have seen her from time to time during the five years that have elapsed since I last worked on her, and though she has not pulled a hair nor done anything to her face, no one would dream that she ever had had the heavy growth she once had, nor notice that she was the subject of hirsuties.

CASE IV.—A young woman, from the right side of whose face I removed 4800 hairs, a colleague taking about the same number from the other side. Six months after the last sitting I met her and she expressed herself as delighted with the result of the operation. Her face looked perfectly free of hair.

CASE V.—A young woman, from whose face I removed 262 hairs. Three months after I removed 32 hairs, and three months after that I took out only 9.

CASE VI.—This is the worst case that I have ever had. The patient is a young woman. She came to me in 1892. I removed, in a series of twenty-eight sittings, 2285 hairs, hardly making an impression on the growth. She went to her home for six weeks and then returned, when I took out in nine sittings 1195 hairs. After another four months 2200 hairs were removed in twenty-five sittings. Again an interval of four months, and a removal of 2745 hairs in thirty-two sittings. After an interval of five months she came again and had 995 hairs removed in ten sittings. And so on, until up to April of 1895 I had removed 11,360 hairs. Now there was a pause of six months, and another series of sittings in which some 1545 hairs were removed. During this last six months she is able to mix in company without any remarks being made, and when the last series was ended her face was in fine condition. It looks as if in one or two more series of sittings we will have the growth under easy control.

These cases will be enough to illustrate the difficulties of the work, and to show the satisfactory results arising from it.

In closing this part of my paper, I would say again that I have perfect faith in the operation, that it is a sure cure, although there are certain difficulties to contend with in attaining a cure, and that, though the operation is devoid of that brilliancy that throws a glow over the major surgical operations, it is one of the greatest gifts

of our art to that much suffering creature, woman.

TOO LITTLE HAIR.

I shall endeavor to be as brief as my subject. I shall give you no statistics, but simply state to you some things that I believe to be true. At this time I shall speak only of what is known as premature alopecia, or falling of the hair before the forty-fifth year. It must be confessed that this is a purely arbitrary division, but it is convenient. I shall say nothing of senile alopecia, for which we can do nothing; nor of alopecia areata—that is a disease of quite different nature. Nor must you take what I say in regard to treatment as applying to the reproduction of hair on a perfectly bald and atrophic piece of scalp, even though on the head of a young man. When a man with such a scalp asks us to make his hair grow, he asks too much. We cannot do anything for him. It is only of the more or less gradual, but persistent, loss of hair, that is so often seen in people who have not yet attained to middle life, that it is my intention to speak.

People lose their hair, either on account of some disease of the scalp, or on account of hereditary influences, or on account of some form of nervous or physical derangement, that interferes with its proper nutrition.

By far the most common cause of loss of hair is some disease of the scalp; and the disease of the scalp that most often causes baldness is seborrhea. This may be of either the dry or oily form. You may, if you please, call it by the name of seborrheal dermatitis or seborrheal eczema; it will make no difference with my statement or the effect of the disease. Now, when you have a well-marked seborrhea added to an equally well-marked tendency to the early loss of hair, you have a combination that is very dangerous to the hair. It is true that my highly valued friend, Dr. G. T. Elliot, believes that all, or nearly all, the cases supposed to be due to heredity are really due to a seborrhea, that caused the hair to fall in the father, as well as in the son. I cannot go as far as that, but do believe that hereditary tendencies show themselves just as much in the loss of hair at an early age as they do in so many other ills that afflict us. We have all known of families in which the hair has fallen at an early age from the heads of most of its male members, and this without any apparent disease of the scalp. A very frequent manifestation of hereditary loss of hair is seen in the receding forehead, that is a well-marked family trait. On the one hand, we see cases of seborrhea of the scalp existing for years, without alopecia, in a patient who comes of a family in which baldness is not common. On the other hand, we see cases of alopecia at a very early age, and we find a seborrhea of perhaps no great amount on the scalp. The disease of the scalp does not appear bad enough to cause the hair to fall, and inquiry brings out the fact that the patient's ancestors, with a good deal of uniformity, were bald at an early age.

Women become bald with much less frequency than men. In a recent study of my cases, I found that those women who became bald gave a history of baldness, or loss of hair in other female members of the family. If further study substantiates this, it will be another witness to hereditary influence in the production of baldness. It has been noted that women are troubled with loss of hair more often than men, but that in them the hair usually returns. So true is this that, when a woman comes to me for falling hair, unless she is growing old and shows atrophic patches of the scalp, I always feel justified in assuring her that she will not become bald. When it is a man who comes, no matter how young he may be, I never feel so assured that his hair will cease from falling or grow in again.

In women we often find anemia, chlorosis, neurasthenia, or some other form of nervous or physical debility at the bottom of the fall of the hair. We can note that the hair grows more abundant, or falls out more rapidly, with the rise and fall of the tide of nutrition in them. These conditions are not so often seen in men, but when they do occur they are just as capable of producing loss of hair.

And now, having thus briefly stated what I believe to be the underlying causes of the fall of the hair, let me state as briefly what I believe are the methods of treatment.

If there is any scaling or crusting on the scalp showing the presence of a pityriasis or seborrhea, our first duty is to address our remedies to its cure. Do not make the mistake of prescribing cantharides at once because there is falling of the hair. To some physicians, falling of the hair always suggests cantharides, just as to other physicians any skin trouble suggests arsenic. If there is much crusting, it is well to soak the scalp over night in sweet oil, with two per cent. of salicylic acid, and to wash the hair and scalp in the following morning. Then in these cases, or without the preliminary soaking in other cases, apply the chosen remedial agent. There are many who prefer resorcin, three to five per cent. in alcohol and water. I have tried this, both on

myself and my patients, and do not like it. It is, in my opinion, only fitted for those cases in which there is an oily seborrhea present. In the other forms it is apt to prove too drying to the scalp, and to increase the itching. If one tries to use a slightly oily fluid preparation of this or other drug, it is not much better. In my experience, though fluid preparations are easier to apply, they are not as much under control as pomades, and are prone to make the hair stringy and generally disagreeable.

After making trial of a great many different drugs and combinations in the treatment of the scalp, I have settled down to two formulas, namely: Sulphur cream, and Bronson's ointment. These give me such satisfaction, that I employ the one or the other in the great majority of my cases of alopecia pityrodes. My preference is for the sulphur cream. This is composed of

℞ Ceræ albæ . . . . ʒ vii
Ol. petrolate . . . . ʒ v
Aquæ rosæ . . . . ʒ ij ss
Sodæ biborat. . . . . gr. xxxvi
Sulphur . . . . . ʒ vii
Mix.

This I use whenever I can. As after a time there is a slight odor of sulphur about the head of one using this preparation, it is not well to prescribe it for physicians, or teachers, or those following any pursuit in which others are liable to detect such an odor. In such cases, and in those in which sulphur does not agree, Bronson's ointment is an elegant and efficient substitute. It is composed as follows:

℞ Hydrarg. ammon. . . . . ℈ i–ii
Hydrarg. chlor. mitis . . . ℈ ii–iv
Vaselin . . . . . ʒ i
Mix.

It is frequently said that ointments are objectionable and that patients will not use them because they make the hair so greasy. That is quite true if one uses a thick ointment and uses it too freely. But if one of the ointments here given is used and the patient be instructed to dip the end of the finger lightly into the ointment, and then to rub the small particle of ointment thus taken, thoroughly into the scalp and not to smear it on the hair, there will be no complaint. It is always best to have the ointment put on by a second person, but if this is impracticable, then the patient must be told to lay the hair in a part and to rub the ointment into the part, and so go over the scalp. Of course this takes time but it need not be done every day. After the ointment is applied, the hair is to be brushed to spread the ointment still more. The application is to be repeated once a day; every other day; or only once or twice a week, according to the nature of the case. It is remarkable how much more comfortable the scalp feels after the use of one of these ointments. Persistently used the seborrhea will be cured in most cases. It must be borne in mind that it will probably relapse, and the patient should be so told, and instructed to keep by him the ointment so that he may attack the disease as soon it appears.

The other diseases of the scalp that tend to produce baldness are so few that I shall not speak of them now.

Apart from the treatment of the disease of the scalp that may be present, I believe that there is but one other remedy worthy to be spoken of, and that is massage. It is absurd to use so-called "hair tonics," which, in most instances, are but more or less strong solutions of cantharides. If we use this irritant strong enough to cause anything but the most fugitive effect on the scalp, we are apt to set up inflammation. And if we use weak solutions and produce only a slight and fugitive irritation, what good is it? Vaunted hair tonics make their reputations very largely in those cases of transient fall of the hair after fevers, and in women, in whom we have said that the hair is apt to fall out and to grow again. Most of these cases in time would regain the hair without any so-called "tonic." They do a certain amount of good by keeping the scalp clean, and it is probable that the rubbing of them into the scalp acts as massage does, and is an accidental good result from their use. In cases in which the hair is really falling out in a vicious way, and in most cases of premature baldness in men they are, in my judgment and experience, of little value.

Massage, on the other hand, is the model method for increasing the nutrition of the hair. It does this by increasing the flow of blood, not only in the superficial vessels but also in the deep ones. We know that the hair papillæ receive their blood-supply from the deep plexus of blood-vessels that give off little arterial twigs to them. If now we increase the amount of blood flowing through the deep vessels, we also encourage the blood-supply to the papillæ, and so stimulate the growth of hair. We also accomplish another important thing, which is the loosening of the scalp. In men who are growing bald you will find that the scalp becomes progressively more and more drawn down upon the underlying bones. An atrophy of the skin is in progress. Now the application of all the local stimulants in the world

will not cause the scalp to loosen. But massage will, and this very thing will greatly aid us in our endeavor to get the hair to grow. It may not cause new hair to grow, and it may not permanently stop the progress of the atrophy, but it will at least stay its onward course and in so much delay the appearance of baldness. Believing that this reasoning is right I have long ago adopted massage as the essential part of the treatment of all cases of loss of hair that are not evidently and without doubt due to some passing and readily curable disease of the scalp. In my own practice I make use of a skilled operator when the patient can afford to employ her. Otherwise I direct him to pinch up and roll his scalp between the fingers of his two hands Happily theory and practice run together in this matter, and I have had the satisfaction of seeing a number of cases greatly improved by the use of massage.

Prophylaxis is what we should preach to all our patients, and especially to the parents. Those who come of weak-haired families should see to it that every disease of the scalp is promptly cared for; they should avoid using water on the hair as much as possible, contenting themselves with a shampoo once in three or four weeks; they should brush the hair systematically every morning and evening with a brush with long and not too stiff bristles; and they should rub into the scalp, from time to time, a little oil or fat. In this way they will stand the best chance of keeping their hair, in spite of any bad family history they may have. As the general health of the patient has an influence on the condition of the hair, we should try and get our patients into the best possible physical condition.

It is not necessary to speak particularly about the fall of hair after fevers or other illnesses. If the scalp is kept in good condition, the hair will in most cases be reproduced. I never advise that the hair should be cut from the head of a woman, or the scalp shaved in either sex. I do not believe that either does any good, and to a woman it is certainly a very serious matter to cut off the hair. Massage will do all that anything will do for these cases, together with the treatment of any disease of the scalp that may be present.

Medical Journals and a Chromo.—Evidences of degeneracy are beginning to appear even among medical journals. The most recent and mortifying example is presented in the advertisement of a semi-monthly journal, which offers a hundred dollar bicycle, of any make and style, *free* to the person sending before July 1, 1896, the largest number of subscriptions at $2.00 a year.

CLINICAL MEMORANDA.

GLIOMA OF THE LEFT CENTRUM OVALE, MONOPLEGIA, HEMIPLEGIA, WORD-BLINDNESS, ALEXIA, AGRAPHIA, PARTIAL APRAXIA AND COLOR-BLINDNESS; OPERATION, IMPROVEMENT.

By J. T. ESKRIDGE, M.D.,
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and
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W. D. M., aged thirty-eight, born in Ohio, practising physician since 1882, married, living in Colorado at an altitude of about five thousand feet five years, was referred to me by Dr. Parkhill. He complained of speech disturbance and paralysis of the right leg and arm.

Father died from rheumatism, at fifty-seven years; mother is in good health. Has three brothers and four sisters, all well and strong. No consumption, mental nor nervous diseases in any of his relatives.

He has enjoyed excellent health. Has never had rheumatism, and denies any venereal disease. His habits have been excellent. As a young man he worked very hard. He has a magnificent physique, is bright and intelligent, and is said to be a good classical scholar. During the summer of 1892 he suffered from a severe attack of indigestion, which lasted six weeks and at this time he was compelled to give up work. His health was soon almost as good as before his sickness, except that he was inclined to be constipated and had to be more careful of his diet.

He dates the beginning of his present trouble from August, 1894, but his friends say that during May, June, and July of that year he was forgetful of small affairs and frequently was unusually drowsy. At times during the day, he found it almost impossible to keep awake. He worked very hard during the summer of 1894, and at one time for a period of two weeks, he obtained very little sleep. In August, 1894, he noticed that his right hand was getting weak, but he could still write nearly as well as formerly, except that he wrote more slowly and occasionally omitted words. The right hand was first affected, next the forearm and finally the upper arm and shoulder. By the middle of September, the entire right arm was completely paralyzed. Just when he ceased to be able to write he does not remember. The tendency to sleep during the day became troublesome in August, so that he found it impossible to keep awake while at work in his office. Sometimes he slept heavily all night, on other occasions he found it almost impossible to get any sleep on account of restlessness. He suffered from no headache nor gastric disorder. Early in September he found difficulty in talking as he would get his words mixed. By the second week of that month almost every sentence that he tried to utter had one, and sometimes several, words omitted.

His speech, however, was understood by others. He recognized his mistakes and would laugh at his inability to say what he wanted to say. He kept at his work, but had to dictate his prescriptions until October 20th. The next day he found that he was totally unable to say what he desired to have written, and on trying to read he was unable to do it. He could pick out a word or two in a sentence and understand them. He had no difficulty in comprehending what others said to him.

October 23d, he started for Galveston, Tex. His right arm was completely paralyzed. He could not say anything except "yes" and "no" and these were often used wrongly. His only symptoms when he left Denver for Texas were paralysis of the right arm and speech disturbance. During the journey there, extending over a period of three days, his right leg became very weak, so that he was unable to dorsally flex the right foot to its normal extent, and soon was forced to drag the right foot in walking. The whole limb felt cold and "dead." During November and December, his leg was worse, but arm and speech remained about the same. Some time in November he began to have great difficulty in dressing himself, and would at times put his clothes on with the inner side outward, reverse his shoes, and get his vest on over his coat. In December, 1894, the right shoulder, arm, and hand became hyperalgesic to such an extent that the least rough usage of these parts caused intense suffering. This condition remained about three months, then these parts felt cold and numb. During his stay in Texas he suffered for two weeks from severe headache. With this exception there had been no headache before he consulted me. The difficulty in dressing himself became so marked that his wife joined him January 10, 1895. Soon after that time he began gradually to improve, and a month or so later he could raise his right hand to his head. walk fairly well and utter a few simple words. In March, 1895, he walked eight miles one day. During that month he traveled alone from Galveston to Iowa, where he remained until May 1, 1895, and slowly improved. On his return to Colorado he could utter the principal words of a sentence, and at times could make himself understood. He employed and understood gestures. He could not use his right hand at all, but he could raise this hand to his head. His right leg had almost completely recovered. The only trouble observed was a tendency to let the front of the foot fall in walking. He learned to ride a bicycle and rode long distances without much difficulty. During June his speech became much worse and he had to give up riding the bicycle on account of the weakness of the right leg. From December, 1894, to June, 1895, he felt dazed.

At present he feels quite well, but has little power of endurance. Is unable to form sentences or to write. He understands everything said to him and can count money. His memory is good. He can sing all the tunes that he knows, and can repeat, in a fair manner, short verses of poetry or a few lines of prose learned when he was a child. There is no vomiting, dizziness, headaches, or convulsions. He complains of no disturbance of the special senses, but thinks his taste was blunted last winter. His physical condition in regard to muscular development and the presence of fat seems excellent, although he is ten pounds lighter than he was before the beginning of his present trouble. He has a dazed and confused feeling when he gets tired. He sleeps well and does not get drowsy during the day as he did a year ago. When he is in the recumbent posture he talks better than he does when he is sitting or standing.

July 12, 1895. Gait is slow and halting. He drags the right foot and the toe of the shoe is greatly worn as the result. There is no distinct ataxia, besides a little jerky and uneven movements of the muscles on voluntary motion, in the leg, arm, or trunk muscles. If there is any ataxia of the right arm it cannot be distinguished, as its muscles are so nearly paralyzed.

Muscular Power.—Right leg, plantar flexion fairly strong; dorsal flexion very weak, and he is unable to bring the foot at right angles with the tibia. There is a slight contracture of the plantar flexors. Knee and hip muscles are weaker than those of the left leg, but still are fairly strong. Left leg muscles normal. Arms: Dyn. R. 18; L. 166. There are flexor contractures of all the fingers of the right hand, upon the hand, of the hand upon the forearm, of the latter upon the upper arm, with quite firm adductor contractures of the upper arm against the chest. The contractures of all the muscles can be overcome by force without giving rise to pain, except those that adduct the arm. The tongue deviates slightly to the right in extreme protrusion, but not if only moderately protruded. The right lower side of the face is paretic, so that voluntary motion is lessened, but as seen in smiling, emotional motion is not perceptibly affected.

The muscles of the thenar eminence and the interossei muscle of the right hand are the only ones that present a wasted appearance. These are considerably atrophied, but respond about normally to the faradic current.

Reflexes.—Knee-jerks; R., enormously exaggerated; L., considerably increased over the normal. Both influenced by reinforcing. Ankle-clonus: R., present; L., absent. Tendo-Achillis: R., exaggerated, with marked clonus; L., increased. Plantar absent. Cremaster: R., absent; L., well marked. Abdominal reflexes absent. Extensors of forearms: R., greatly exaggerated; L., about normal. Biceps: R., exaggerated; L., slightly increased. Triceps about the same as the biceps. Deltoid: R., well marked; L., absent. Pectoralis major: R., pronounced; L., absent. Masseter absent. Pharyngeal and iris reflexes present. Sensory phenomena: Right side. Tactile sense is present throughout this side, except on the distal portions of the fingers, where a camel-hair pencil cannot be perceived, even when it is in motion. Throughout this side, but more marked in the distal portions of the leg and arm the sense of touch is blunted. Localization is perverted and lessened everywhere, and almost completely lost on neck, trunk, arm, and leg. When the right hand and foot are touched he not infrequently refers the impression to the corresponding part on the left side. Temperature sense is lessened in face and nearly absent in parts below the face. Pain sense acute throughout the entire side. Posture sense apparently present, although

his speech difficulty makes it impossible to be absolutely certain in regard to this point. Muscular sense absent. Pressure sense uncertain. Joint sense seems to be present. All general sensory phenomena normal in left side. Smell and taste present and equal. Hearing; watch, R., 2/3; L., 2/3; tuning fork test not reliable, and he gets excited and confused in trying to understand what I want, and in endeavoring to make me understand his impressions.

Eyes.—Vision: R., 20/30; L., 20/30; fields normal; all the external ocular muscles act well; pupils equal in size and respond readily to light and accommodation. Fundi normal.

Mental Condition.—Early in the examination his mind appeared quite clear, but as soon as he became fatigued he at once showed evidence of mental confusion. Further examination was deferred until he was rested.

Speech.—Most of the objects that he sees he recognizes at once, but those less familiar to him seem to confuse him. When objects are presented to him by hearing, taste, or smell, he recognizes the familiar ones as readily as when he sees them. On the right side tactile sense is too dull to enable him to recognize objects by feeling them. On the left side certain qualities are readily appreciated by tactile sense.

He appears to know the use of all familiar objects, so far as he is tested. He is unable to recall the spoken names of objects presented to him through any of the senses, but for most familiar objects he recognizes the name of each when it is repeated. Not infrequently, however, especially if he is a little fatigued, he becomes confused about the names of objects that are very familiar. There is a condition of verbal amnesia for the names of familiar objects and probably apraxia for those less familiar. When he is blindfolded and called by his wife, he smiles and says, "That's all right, but I can't say it, no." He means that he knows who is calling him but he cannot recall her name.

He understands sounds other than speech and speech and music. He is very fond of music and is said to have been quite proficient in it. He has no difficulty in singing a familiar tune if his wife will lead, but he cannot be gotten to start and sing a tune unassisted. He promptly calls to mind the objects named and points them out. He has no difficulty in recognizing and pronouncing a word spelled aloud, and he can call up mentally the sound of a note, figure, letter, or word.

He is unable to recognize a note, rarely a letter, but occasionally he recognizes and even calls the names of some figures. He is totally unable to understand most printed and written words. He recognizes his own name, points to himself and says, "that all right." He is unable to read printing, writing, or music, either aloud or inaudibly.

In a few instances only can he recall an object, the name of which is seen. This power is retained for a few of the most familiar objects, the names of which are short, such as dog, cat, rat, book, longer names of equally familiar objects give him no idea of the object, *e.g.*, matchbox, penknife, handkerchief. Less familiar objects with short names are not recalled by seeing their names, *e.g.*, parrot, grouse, quail.

On testing his power to write voluntarily, his name fairly well written with his left hand, is the only result. After he writes his name at the first attempt, I tell him to write something else. He hesitates a while, and again writes his name. This is repeated several times. He cannot write at dictation. He copies fairly well with his left hand, the right being completely paralyzed, but the copy is made mechanically, writing appearing as script and printing as printing in the copy. Each letter received the degree of shading found in the original. He cannot write the names of any objects presented to him by any of the special senses, and does not know what he has written when he copies, except it be his own name. He can write his name voluntarily, and at dictation, and can read it when written by himself, by another person or when printed.

Generally he does not seem to be able to recognize a letter or figure when his left index finger or hand is made to trace it, but sometimes he would say, "all right," meaning he knew, but on questioning him if he were sure, he would wave his hand in front of his face, meaning that he was confused or uncertain.

In testing his power to call up mentally the appearance of an object, a figure, note, letter, or word, it is impossible to determine accurately the extent of the defect, as he sometimes says "no" when he means "yes," and *vice versa*. He does not seem to have any difficulty in mentally calling up the appearance of objects, but for those of figures, notes, letters, and words there is a grave defect.

Voluntary speech is much impaired. If he is asked to say something he will simply say "It's all right," then smile at his failure, or look vexed and say "Oh pshaw!" At times he endeavors to make his wants known by speech. He will utter one or two of the principal words of a sentence, make a few gestures and look anxiously for some one to complete the sentence for him. If the wrong word is supplied he immediately rejects it, but when the right one is suggested he accepts it with an approving smile. The defect in voluntary speech is due to verbal amnesia.

He can repeat long and difficult sentences after another if one word is uttered and he is allowed to repeat it before the second one is spoken. If several words of a sentence are uttered he will say one or two of the principal words, but will leave out the articles, pronouns and adjectives, etc. The defect in repeating words after another appears to be due to his inability to remember more than one or two words at a time. If he is asked to repeat a word over several times and told to try and remember it, five minutes later it is found that he has entirely forgotten it.

He recognizes many, but probably not all, of his mistakes in speaking or writing, but is powerless to correct them. If his mistakes in speech are corrected for him, he recognizes and appreciates it. If his mistakes in writing are corrected for him, he does not recognize it, but accepts it by saying "Don't," or "Don't know," or "All right."

The patient has no difficulty propositionizing or thinking in speech. There is no special difficulty with one

part of speech more than another. His memory for nouns or the principal words of a sentence is better than for the less important words. He understands and employs gesture expression in speech.

He cannot read figures or calculate, neither can he count in numbers. He recognizes money and succeeds in making change. He cannot play a game of cards.

All the internal organs, except the brain, were apparently normal.

After completing the examination I concluded that the doctor was suffering from tumor of the brain, which was large and rather diffuse in character, and that it was situated in the left cerebrum, subcortical, at least in its early stage, to the angular and Rolandic regions. I advised as the only hope, an early operation for its removal, but requested him to go to the St. Luke's Hospital and let me study his case daily for a while before submitting to an operation. He accepted my diagnosis without hesitation, and gave me to understand, aided by his wife in communicating his wishes to me. that he would follow my advice to the letter.

His wife further stated that her husband had been convinced for some time that he was suffering from tumor of the brain and had desired to have it removed, but physicians and relatives had opposed such a procedure.

He entered the St. Luke's Hospital, July 13, 1895.

Careful temperature observation of the heat of the mouth and the two axillæ were made several times each day, together with a record of the pulse and respiration. I desire, in this connection, to acknowledge my indebtedness to the intelligent coöperation of the pupil nurses in the training school of the Hospital, for the careful and efficient manner in which they made observations for me. I personally made several comparative surface temperature observations of the head on several different occasions, and from time to time verified the accuracy of the axillary and mouth temperatures taken by the nurses. In all the temperature observations the Fahrenheit scale was used. July 13, 7 P.M. axillary temperature, R., 98.2°; L., 98.2°; P., 78; R., 22. Head: temp., temporal; R., 94.8°; L., 95.3°.

July 14, 7 A.M. the axillary temperature was 97.3° and practically the same on each side; pulse and respiration about the same. It was observed that he got his shoes changed in putting them on, and he did not seem to be able to correct his mistake without the assistance of the nurse. At noon, temperature, axillary: R., 97.2°; L., 97.3°; mouth, 97.8°; P., 68; R., 20. Head temp.: Temporal: R., 96.2°; L., 96.6°. Mid-Rolandic: R., 96.1°; L., 96.5°. Parietal eminence: R., 96°; L., 96.2°. During the remainder of the day the record was practically the same.

July 16, 6.30 A.M.: temp. mouth: 97.2°; axillary: R., 96.6°; L., 96.8°. Pulse and respiration unchanged. It was observed on that day that the fields in the right lower quadrant of each eye were a little contracted.

During the next four days temperature was not above normal.

July 18, the following notes were made. "All the movements of the right foot and leg are fairly strong, but they are slow and awkward, especially at the ankle. Right shoulder movements are strong, but these also are slow and awkward. He cannot rotate the right forearm, move the thumb or any one finger of this side separately. Thumb remains almost motionless, even when he attempts to move it in association with the fingers of the hand, He can slightly flex the fingers of the right hand, when all the fingers are allowed to move at the same time, but it requires an extraordinary effort on his part to do this, and it is attended by movements of the right elbow and shoulder, and flexor contraction of the fingers of the left hand. Right foot and hand are cool and dark from venous stasis.

The Rolandic region, the greater portion of the parietal lobe, especially the inferior parietal lobe and the angular gyrus of the left side, all seemed to be involved by the lesion. It was thought that a trephine opening through the skull just below the parietal eminence would expose the center of the morbid process, which was thought to be a tumor. The operation and surgical aspect of the case will be found described by Dr. Parkhill.

After I had satisfied myself that the patient was suffering from some organic brain lesion and not from a mere hysterical or functional condition, the further differential diagnosis seemed to lie between a vascular lesion and abscess or tumor.

The absence in the history of the case of all evidence of apoplectic or apoplectiform symptoms inclined me to regard the case of non-vascular origin. The gradual onset of the symptoms beginning in the right hand, later affecting the forearm, upper arm, and shoulder, and finally involving the leg of the same side, is contrary to what we find to result from vascular lesions. A small area of softening may take place from the occlusion of small vessels and later by the occlusion of other vessels, the area of softening may extend and involve adjacent centers to those first affected, but in such cases there is a history of slight apoplectic attacks.

There was no detectable cause for abscess of the brain. Besides when a cerebral abscess becomes extensive enough to produce hemiplegia, the brain function is so interfered with that life, as a rule, is prolonged only for a few weeks at most, and generally only for a few days. Decided improvement in such cases rarely, if ever, takes place, and if it should occur, it would not be maintained over a period of months.

I was forced to the conclusion that I had a tumor to deal with. Could the symptoms be accounted for by the presence of a tumor ?

A tumor in the centrum ovale, in which intracranial pressure is not much increased, may be unattended by optic neuritis, headache, nausea, vomiting, vertigo, and convulsions, and its presence may be suspected only when fibers of the corona radiata are involved, the connection of which is with more or less definitely known centers of the cerebral cortex. The gradual development of the symptoms, beginning in the distal portion of a limb and extending toward the body is a common occurrence in intracranial tumors, situated in the cortex or immediately below it. Rapid development of symptoms, after the dis-

ease has existed for some time, followed by periods of weeks or months during which the disease does not advance, but may retrograde considerably, occurs in some vascular growths, especially of the sarcomatous and gliomatous varieties. There did not seem to be any symptoms that could not be accounted for by the presence of a growth in the centrum ovale. The history of the case indicated that the growth was a glioma or sarcoma.

THE SURGICAL ASPECT OF THE CASE.

By Dr. PARKHILL.

On July 19, 1895, preparation was begun for the surgical side of the above case. The scalp was shaved, measured, and the markings made permanent by nitrate of silver solution. The scalp was then scrubbed with soap and water, with ether, and finally with a solution of mercuric chlorid. Dressings wrung out of these mercurial solutions were then applied, to be left until the time of operation. He was given a purgative of epsom salt on the evening of the 19th.

The operation was begun at 11.30 on the morning of July 20th. The markings of the scalp were transferred to the bone by the Parkhill skull marker. The scalp was then raised and a button of bone was removed just posterior to the arm center in the left Rolandic region. This opening was enlarged with rongeurs, until it had a diameter of about an inch and a half. The bone proved to be quite vascular and hard and had about the normal thickness. The dura was then opened by a crucial incision. The underlying membranes seemed normal. There was no pulsation and the brain was much more firm and resistent to the touch than normal. The exposed surface was of a dirty, yellowish color. It then became apparent that the tumor had a greater area than the bony opening, so this was enlarged until it had a diameter of about two and a half inches, The membranes were also opened to a corresponding degree. The tumor was cut away piece-meal, with a sharp Volkman spoon. It was quite firm and tough. The yellowish discoloration which was perceptible on the surface was found to prevade the entire mass. Its limits were made out only by lessened resistence to the instrument and a change to normal color. Some embarrassment was encountered from hemorrhage, but not more than is usual in the removal of such growths and it was rapidly controlled by plugging and slight pressure, by means of sterilized gauze. This growth approximated a circle, having a diameter of about two inches and extended to a depth of about three-fourths of an inch.

The membranes were reunited with catgut, except at the most dependent point through which a small rubber drainage-tube was inserted, and this was brought out through the middle of the scalp flap. The scalp was sutured with silkworm-gut, the usual dressings applied, and the patient returned to his bed, the operation having occupied something less than an hour.

The patient exhibited considerable shock for the first few hours, his axillary temperature dropping as low as 96.8°. It had risen, however, to 98.3° at 6 P.M. He was stimulated by alcoholics and heart tonics for twenty-four hours. His recovery, from a surgical standpoint, was entirely uneventful. His temperature fourteen hours after the operation reached 100.6°, but dropped to 99.6° at the end of eighteen hours, which was never exceeded afterward.

On March 22, 1896, seven months after the patient had left the hospital following the removal of the tumor, I lifted the scalp over this area, dissected it away from the dura, and inserted a piece of gold foil the size and shape of the bony opening. This was dressed on the sixth day and found perfectly sound, and the patient was sent home.

SUBSEQUENT HISTORY OF THE CASE FROM THE STANDPOINT OF THE NEUROLOGISTS, WITH REMARKS.

By Dr. ESKRIDGE.

Angust 7, 1895, eighteen days after the operation, I first examined the patient. His condition then was nearly the same as it had been before the operation, except that the right leg, especially at the distal portion, was weaker. He could, however, read a few words and point out most objects, the names of which were spoken. The optic disks and ocular fundi were normal in appearance. The fields were well preserved, except a slight narrowing of the right lower quadrant of each eye. Central vision was good.

October 17th he was again examined. The paralysis, especially of the face and leg, were decidedly less than before the operation. He was able to count money and to make change. He did not seem to be able to recognize colors. His speech was a little better.

October 28th, at 3 A.M. he had a general convulsion. The night before he had eaten heartily of pumpkin pie and had been constipated for three days. The right hand began to jerk, he screamed and a general convulsion, involving both sides of the body occurred. The left side was less affected than the right. During the convulsion and for an hour or two after it, the soft parts were protruding through the opening in the skull and were pulsating. After his bowels had been throughly opened by an enema, he regained consciousness, the brain receded and all visible pulsation ceased.

November 19th, the doctor drove from Longmont to Denver, a distance of thirty-four miles, without being fatigued. He was much improved physically and mentally appeared clearer. His wife stated that he had been trying for some weeks to read the papers, and was frequently able to tell some things that he had read. On my testing him I found that he did not know a letter of the alphabet. While riding along the road he repeatedly pointed out objects and spoke their names, *e.g.*, "Hello, a Jersey calf." He was still able to pronounce any word that was spelled aloud for him. He was beginning to re gain some in voluntary speech, and could recall some objects, the names of which were seen. He could recall all objects, the pictures of which were seen, and often name them. He could read and pronounce the word "box" and pick out a box from several objects on the desk, yet he could not recognize a single letter employed in spelling the word. He could count money readily, but could not count by numbers. It was observed that words

called up ideas, *e.g.*, "river" he called "water"; "Paris," "France"; "Council Bluffs," "Iowa." Of late he has been able to play games, both with checkers and cards.

The muscular rigidity was very much less; the knee-jerks were nearly normal; ankle-clonus was absent; deep reflexes of right arm still very much exaggerated; he could pronate and supinate the right forearm, and raise the arm without assistance above the head. The next day he came into my office alone; I asked him where his wife was. He promptly replied "trading," meaning shopping. Dr. Charles F. Andrew, of Longmont, Col., kindly made observations from time to time for me. He found that the patient could not sing a tune unless it was started for him. In trying to whistle a tune he would get the wrong one, but would recognize his mistake. On December 20th; he still had great difficulty in recognizing colors.

January 3, 1896, Dr. Andrew found the fields of vision normal, and the central vision good. His color sense was much impaired. He could calculate and count into the hundreds. He read a number of words, but recognized only one letter of the alphabet, "a". He recognized six out of nine numbers written. During the first week of January, while his stomach was out of order, he had his second convulsion, similar in every respect to the first.

March 8, 1896, he was examined again. Muscular power in the right hand had improved a great deal. Dyn. R., 50; L., 170. Contractures and deep reflexes were lessened. He walked fairly well and was able to harness and unharness his horse. He could drive long distances without becoming fatigued. Localization sense was greatly perverted, or nearly absent throughout the right side, except in the face. Tactile sense was present, but lessened. Temperature sense was absent throughout the right side, except in the face. Cold substances were called hot, and hot substances (temperature of 120°) were scarcely felt. Pressure sense greatly lessened; joint sense present; pain sense was lessened, but not abolished. Posture and muscular senses were absent in right arm. Hearing, smell, and taste showed no change. He had improved some in speech, especially in repeating longer sentences than he had been able to do before the operation. Voluntary speech was a little better, but he was still completely letter blind, word blind, for all words except very familiar ones. He was unable to write voluntarily, and had made very little progress in learning to read.

On March 11th, he had his third convulsion.

On consultation with Dr. Parkhill, it was decided to raise the scalp and insert gold foil between it and the dura, as it was feared that adhesions had formed between these and caused the convulsions. Firm adhesions were found between the scalp and dura.

As all the convulsions have begun in the right hand, and firm adhesions were found between the dura and scalp over the center for this hand, it is probable that the insertion of the gold foil will prevent the irritation which gave rise to the initial convulsive movements.

The result in this case, although a complete cure cannot take place, is encouraging toward further and earlier operations for the removal of tumors of the brain. The tumor was thought to be quite large before the operation, but it was hoped that an encapsulated sarcoma would be found, instead of an infiltrating glioma. Had the enormous size of the tumor and its infiltrating character been known before an attempt was made to remove it, it is very probable that an operation would have been discouraged. After the operation the wife was told that there was little to be hoped for, as the tumor would in all probability return. At the end of ten months improvement still continues, and there is no evidence that the growth has returned. In such cases, even if no better results can be obtained than has been achieved in this one, the outcome fully justifies an attempt to remove the growth. A person in the patient's present condition is able to enjoy life.

REPORT OF A CASE OF LANDRY'S DISEASE.

BY R. E. LEWIS, M.D.,
OF MACOMB, ILL.

ON the morning of July 20, 1894, I was called to see Mrs. G., aged fifty-three, whose occupation was household duties. Her family history was good, most of her people living until well advanced in years.

For six months previous to the present attack she had been under great mental and physical strain, which was followed by exposure by sleeping at night where a strong current of air passed over her body, and now complained of distressing paroxysmal pains shooting down both lower limbs, beginning at the exit of the sciatic nerves, and following them to their terminations. Very slight tenderness was detected by pressure where the nerves became superficial. Aside from this the patient felt comparatively well. Her temperature was 100⅖° and pulse 85. She was put to bed and ordered phenacetin and sylicylate of sodium each grs. v every three hours. She rested well that afternoon and passed a comfortable night.

On the following morning, July 21st, I found my patient entirely free from pain, in good spirits, and expressing her desire to get out of bed, which was refused, but permission was given to sit up in bed at short intervals during the day. At this time she called my attention to a slight tingling in the right leg which she described as a vibratory sensation. Her temperature was 99⅖° and pulse 78. The phenacetin and salicylate were now discontinued and gentle friction to the limb ordered.

July 22d the general condition remained the same, appetite good, and free from pain, but now she informed me that the tingling had become noticeable in the other limb, and in getting in and out of bed she found that her limbs did not support her as usual and some assistance was necessary. This was not because of pain in the members, but because they gave way beneath her and felt heavy.

July 23d I found complete loss of motion in the right leg, with only partial motion remaining in the left. The patellar reflexes were both absent but the sensation over the limbs was normal. Her temperature at this time was 101⅘°. The appetite was good and she had no pain.

On the morning of the 24th I was called early to empty the bladder, which she had been unable to accomplish.

The urine was dark, of high specific gravity, free from albumin and sugar, but giving quite a deposit of urates and phosphates. From this time until the termination of the case there was complete retention of urine and feces. The paralysis had been gradually creeping up, and now there was complete loss of motion in both lower limbs and muscles of the trunk, so that she could neither sit up nor turn herself in bed. When propped up she would soon slide down and become doubled up. Her temperature was 101°; mind clear. The 25th was marked by a rise in the temperature to 104° and numbness and tingling now appeared in the hands, the right slightly in advance of the left. The grip in each was considerably reduced. At different times during the day the lower limbs became moist with cold perspiration.

July 26th the temperature fell to 103°, where it remained during the 26th and 27th. There was gradual progression of the paralysis in the arms, with a continuation of other conditions the same.

July 27th she showed complete loss of motion below the elbows and diminished activity above, with slight disturbance of mind.

During the 28th the mind became more disturbed and she talked incoherently. Her pulse, which at no time became rapid, was now 60, and her temperature 101⅖°. Before night motion in the upper extremities was entirely suspended, completing the paralysis of the trunk and all extremities. There were several attacks of syncope during the day and following night, but death did not ensue until 9 A.M. of the 29th, about eight days from the onset of the disease.

I report this case under the head of Landry's disease with some hesitancy, for in looking over the literature upon the subject there is found quite a diversity of opinion as to what actually constitutes the disease in question. Some authors contend that it is one form of myelitis, and others that it coincides exactly with multiple neuritis, while others do not mention it at all.

It is easily separated from acute myelitis by the complete absence of sensory and trophic disturbances almost invariably present in the latter disease, no matter how sudden the onset or how rapid the progress. The disease with which it is most apt to be confounded is multiple neuritis, and certainly they have many symptoms in common which renders a diagnosis not only difficult but sometimes impossible.

It will be noticed in the above report that quite an elevation of temperature occurred at different times during the course of the disease, which most authors refuse to accept as one of the symptoms of Landry's disease, although H. C. Wood[1] states that this may occur. Its presence gives the case the appearance of multiple neuritis, but the existence of the bulbar symptoms so constantly present in acute ascending paralysis, coming on in the regular progress of the disease seems to overbalance this point, and throw the weight of evidence in favor of the latter. At best, the differentiation is made with difficulty, and cases resembling either are worthy of being reported, that our knowledge upon the subject may become more complete.

[1] "Pepper's American Text-book of Theory and Practice."

Up to the present time no specific has been offered in the treatment of these cases, and all efforts at stopping the rapid progress of the disease seem unavailing.

The etiology is somewhat obscure, but it is strongly suspected that the malady is of bacterial origin. Possibly when this is more thoroughly demonstrated we shall have a remedy put within our reach which will prove more effectual than anything which has yet been brought forward. This is sincerely to be hoped, since, with our present armamentarium, we are practically helpless.

THERAPEUTIC NOTES.

The Treatment of Diphtheria with the Antitoxin.—VIRNEISEL (*Munchener Medicinische Wochenschrift*, 1896, No. 19, p. 456) reports the results obtained at the City Hospital of Coblentz, in the treatment of diphtheria with the antitoxin, from October, 1894, to April, 1896. During this period 158 cases came under observation, of which number 8 were given no injections—3 mild cases for control purposes, 5 cases in extremis. Among the 150 cases there were 19 deaths (12.7 per cent.); 64 cases presented grave laryngeal complications, and 5 of these were almost moribund when they came under observation. Fifteen of the 64 cases requiring tracheotomy terminated fatally—23.4 per cent.—(as compared with from 56 to 64 per cent., in previous periods). Albuminuria was observed in 67 cases, of mild degree in all but 5. Other than passing skin eruptions, unpleasant secondary effects, were not observed in any case.

For Acute Coryza.

℞ Zinci phosphidi gr. vijss.
Extracti belladonnæ gr. vj.
Mix. Fiat pilulas No. xl.
S. One thrice daily, after each meal.

In case of general impairment of nutrition one grain of arsenous acid may be added to the foregoing prescription. —*Gaz. hebdom. de Méd. et de Chir.*, No. 42.

The Serotherapy of Exophthalmic Goiter.—In a case of exophthalmic goiter in a woman, thirty-two years old, GIOFFREDI (*Semaine Médicale*, 1896, No. 26, cii) observed improvement follow hypodermic injections of the blood-serum of a thyroidectomized dog presenting all of the phenomena of the cachexia strumipriva. The serum obtained with antiseptic precautions was sterilized, and had added to it .1 per cent. of cresol. In the course of forty-seven days thirty-seven injections of from .5 to 1 c. cm. each were made; and after an interval of two weeks seventeen additional injections, each of 2 c. cm., in the course of twenty days. In the course of the treatment there was almost complete cessation of the headache, the anorexia, the agitation, the trembling, diminution in the exophthalmos, improvement in the general condition, and a return of menstruation. This result, however, was but temporary, as the symptoms returned gradually upon suspension of the treatment. When the dose of the injection exceeded 1 c. cm. there occurred slight febrile reaction.

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OF MEDICAL SCIENCE.

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SATURDAY, JULY 11, 1896.

INTESTINAL ISOLATION.

EISELSBERG has written an interesting review (*Nederl. Tijdsch. v. Geneeskunde*, 1896, No. 8) of this distinctly modern surgical procedure. The operation aims to separate from the alimentary tract any portion of the intestine which is irritated by, or obstructs the passage of, feces. The bowel is cut through on either side of the affected portion, and the ends sutured together, *i.e.*, a "short circuit" is made about the stricture or tumor. The latter remains *in situ* and may be treated in a variety of ways. Either end or both ends may be attached to the surface of the abdomen and a fistula be established; or one end may be sutured to the other, thus making a ring; or both ends may be closed and the isolated bowel dropped back into the abdominal cavity. Eiselsberg considers a fistula necessary to give escape to the intestinal secretion. Although the three cases in which perfect closure was made prove that sometimes the amount of secretion may be so small as to give no trouble.

No less valuable is the fact that a tumor which seems inoperable may so dwindle when it is cut off from the intestinal current that a radical cure is to be hoped for by its extirpation.

Altogether the operation has been performed thirteen times, including four cases of the author. In two of these four cases a cure was obtained; in one the result was unsatisfactory, and one died.

This operation suggests the use of a segment of intestine to close a gap in another part of the intestine. Thus, if so much of the hepatic flexure be removed that the ends cannot be brought together, it would be possible to make good the continuity of the bowel by sewing into the gap a loop of small intestine. This would make necessary three lines of circular intestinal sutures. It has never been attempted in man. But it has been successfully performed in dogs.

MANUALS OF DOMESTIC MEDICINE.

IT is with considerable regret that we learn of the publication of a new "Manual of Domestic Medicine," offered by a publishing house in New York City. It is recommended as "of service to physicians, medical students, and trained nurses." Could it be kept in the hands of these, it might at least do no harm. But it is sure to have a sale among the laity, and no doubt it was primarily intended for them. Such a publication does harm to the physician by increasing the interference with his work by some member of the family, and probably by the patient himself, and does harm to the patient by suggesting temporizing and self-prescribing.

It is difficult to surmise how a physician of experience and standing can write or compile such a work. It is an entirely unscientific and unprofessional proceeding, for it presupposes that everyone to whom the book is sold is able to make a correct diagnosis. It begs the question of the science of medicine by abolishing that fundamental essential. If everyone can name his or his neighbor's disease, and if disease can be combated by rote, of course anyone can take a book, a teaspoon, and a selection of medicines, and proceed to treat himself or his neighbor. There is undoubtedly a great deal of information, which some member of every household should possess, in order to save the patient from loss until a physician can arrive. Were the book under consideration a manual merely of such information,

we would welcome it, if it contained anything new. But it is a "Manual of Medicine, Surgery, Hygiene, Dietetics, and Nursing!"

Every physician of experience has been taught in a different and a better school than one of Domestic Medicine. It is an an insult to an educated physician to offer him such a work as the present, and no medical teacher would think of putting such a compendium in the hands of his students. "Domestic Suggestions" is not the pabulum on which medical students are fed.

Who of us has not had under his care, at some time, a harassing patient, who had "studied medicine" for a few hours, and who knew more about the human frame and medical science than his physician, in spite of the latter's years of study and experience? The writer is now in attendance upon a lady who has read some book on medicine, and who gives him points regarding proper methods of treatment daily. She informs him that "the systole of her heart is all right, but the aristole is not"; again, that no physician ever gives trional "without watching the urine all the time"; again, that she has pains through "the cervix," when there is gas in her colon, varying this statement with the assertion that "the fundus is very painful." Another patient has insisted that the physician has been wrong in his treatment of him for over six months [during which time the patient has rapidly improved], because he had decided that all that was at fault was his "duodum," which he could not locate." He has obtained his smattering of dangerous quasi-medical knowledge from such a work as the one we criticize. Without knowing the shape, position, use, or function of the "duodum," he was convinced of the diseased condition of that organ. This superficial and absurd pretense of medical information would be laughable, were it not for the fact that those who possess it compel the physician to argue, explain, and teach, a process that must be repeated every day; a process that does no good, for the ignorant one who demands and hears the explanation cannot remember enough of it to apply it properly on a later occasion. Instead of profiting by it, he invariably misquotes the physician, and thereby damages him to a certain extent.

The publication of this "Manual" is useful simply for advertising the author, or for the financial return it will secure. It can subserve no good medical purpose which could not have been accomplished in some entirely professional way.

RESUME OF RECENT PROGRESS IN SURGERY.

THE TREATMENT OF FRACTURES.

THE subject of fractures has in recent years, in this country at least, been somewhat overshadowed by the advances in operative surgery. American surgeons have, however, always manifested a keen interest in the repair of fractured limbs, and many of the most important methods for the treatment of this class of cases have been devised and perfected by them.

For the treatment of fractures of the lower extremities two new methods, or, rather, modifications of old methods, have been recently proposed in Europe and have already been employed to a considerable extent in the United States. Each of these possesses features of novelty and also of practical utility. Each is worthy of more extensive trial.

The first is the method of "massage and mobilization," which has been systematized and strongly advocated for the past six years by Lucas Championière. He claims that this method is revolutionary and paradoxical, and one absolutely new and contrary to the theory and practice of surgeons. Such terms are, however, extreme for the plan is not entirely novel though it has never before been carried into execution in such a systematic and thorough manner as is advocated by this surgeon. According to this method immobilization of the limb is avoided. Massage is begun at once—the sooner the better—and employed daily until the bones have united. The seances as a rule last fifteen to thirty minutes. At first the manipulations must be gentle, and pressure should not be made directly over the ends of the fragments. In the intervals the limb is supported merely by a flannel bandage evenly, but not tightly, applied or by sand-bags alone. Splints or other immobilizing apparatus are not employed. The claims advanced for this method are: rapid disappearance of pain and swelling, prevention of and more rapid absorption of the

edema and infiltration of the soft parts and of the effusion in the joints, preservation of muscular nutrition, and the more rapid formation of a firm callus. As a consequence the fracture is followed by but little stiffness of either muscles, ligaments, or joints, and as soon as the bone is united the function of the limb is fully restored and the patient thus saved weeks or months of pain, stiffness, and disability. In certain cases, however, the originator of this plan grants that his treatment cannot be carried out in all its details. When the mobility of the fragments is so great that there is danger of a permanent deformity, or when the ends are so sharp that manipulation is apt to produce repeated traumatisms of the soft parts, or where the vitality of the skin has been endangered on account of the severity of the injury, the use of massage should be postponed for a week or two and the limb may be even confined for a few days in splints. There can be no question but that in certain cases this plan of treatment possesses advantages over the recognized treatment by complete immobilization. For example, in fractures of the radius or of the fibula the period of inability will probably be considerably shortened. It is not, however, a safe method to employ in every case of fractured leg. The risk of bony deformity is probably increased and it is very doubtful if either the patient or surgeon will be satisfied with a crooked limb even at the expense of a shorter and an easier convalescence. In many cases this method must prove a dangerous one, and it therefore cannot be recommended for routine practice.

The other method is the so-called ambulatory plan of treatment for fractures of the lower extremity, but especially of the leg. The method is not entirely novel, for at different times it has been used by surgeons in this city, though perhaps not in the systematic manner in which it is now practised in Holland, Germany, and in our own country. Plaster-of-Paris has always been largely employed in this country and has been especially popular in New York and Boston, in which cities, indeed, its use has been for many years almost universal in the treatment of fractures of the leg. The fracture-box has happily disappeared and in most of our city hospitals is not to be found in the surgical armamentarium. According to the ambulatory plan of treatment the use of the plaster splint is carried to a still greater state of perfection. It is claimed that the patient can get out of bed a few days after the accident, and can walk at the end of the first week, with the assistance of one crutch or a cane. About twelve years ago it became the custom of several surgeons in this city to encourage their patients to get out of bed as soon as possible, and often they would be able to walk on the injured limb at the end of a week or ten days. This plan, however, which only differed in a few details from the method now called the ambulatory, seemed to have fallen into disuse, in part perhaps due to the custom in our hospitals of handing over the treatment of fractured legs to the hospital internes, many of whom have habitually enveloped the limbs in rolls of cotton underneath the plaster. The ambulatory treatment as systematized at the present day consists in the use of a plaster splint snugly applied, without the use of cotton on the leg, but with this addition: that on the sole of the foot underneath the splint is placed a pad of cotton about three-quarters of an inch thick and slightly deeper at the heel. This splint grasps the leg firmly about the bony prominences, especially at the upper part of the leg and head of the tibia. The leg thus hangs suspended to a certain extent in the splint, the greater weight being borne on the bulging part of the leg below the knee, the sole of the foot being separated from the splint by the pad of cotton. The principle is the same as that taken advantage of in the use of an artificial limb, though, of course, the avoidance of pressure at the end of the limb is less perfectly accomplished. In a few cases this splint can be applied immediately before swelling has resulted. Generally, however, this is impossible and it is then wise to delay its application for four or five days, so that it may not be rendered unserviceable by the shrinkage of the limb. The short period of confinement to bed and the preservation of muscular nutrition are the main advantages of this plan of treatment, and as a result the general condition of the patient remains good and his period of invalidism is much shortened. It is not, however, a method adapted for all cases. In a considerable number the pain is so great that the patients cannot walk; in others, the weight

of the splint or timidity prevents locomotion. In some cases the shape of the upper part of the leg prevents proper support; in others the obliquity of the fragments is such that there is considerable risk of overriding and ultimate shortening, and in still others the laceration and contusion of the soft parts is too severe to warrant the early application of the splint. Experience seems to show that the ambulatory splint can be used with distinct advantage in from thirty to forty per cent. of simple fracture of both bones of the leg and in nearly all cases of fracture of the fibula. The same principle may be occasionally employed with advantage in the treatment of fracture of the knee though, of course, the apparatus must be of a different pattern.

One fact must not be forgotten in the trial of new methods, *i.e.*, that there is no class of cases, either in surgery or medicine, where the medical attendant is liable to meet unjust criticism or suits for malpractice as in cases of fractures where a perfect result has not been obtained. Caution, therefore, should be exercised in the employment of methods which have not received the general sanction of surgical authorities.

ANDREW J. MCCOSH, M.D.

ECHOES AND NEWS.

Dr. Welch Honored.—Yale University, on the occasion of its commencement in June last, conferred the degree of LL.D. upon William H. Welch, M.D., of Johns Hopkins University. Dr. Welch is an alumnus of Yale, and richly deserves this honor at the hands of his Alma Mater.

Dr. Doremus Appointed as Representative in Paris.—Professor Charles A. Doremus of New York has been appointed by Secretary Olney to represent the United States Government at the Congress of Applied Chemistry, which meets in Paris during the present month.

The University of Michigan Popular with the Orientals.—So many Japanese have received diplomas from the University of Michigan, that they have been able to organize and maintain an alumni association in Tokio, Japan. Two Chinese girls have recently had the degree of M.D. conferred upon them by the same institution.

A Strong Stand Against Popular Advertising.—The Austin-Flint Medical Society, at a recent meeting held at Hampton, Iowa, passed a resolution demanding that editors of lay papers in that district refrain from publishing notices of surgical operations, or other news matters containing the names of physicians.

In Memory of Dr. Loomis.—A large and very handsome tablet, bearing the following inscription, has been prepared by the Commissioners of Charities, and will be placed in Bellevue Hospital, New York:

"In Memory of Alfred Lebbeus Loomis, M.D., LL.D.
Born October 16, 1830—Died January 23, 1895.

A man of rare attainments. He had a strong will, untiring industry, and directness of purpose. These traits, with his well-ordered and resourceful mind, made him one of the ablest of his profession, and won for him its highest honors. He made many valuable additions to medical literature, and by his unusual powers as a teacher and practitioner of medicine, compelled the admiration and confidence of all who came in contact with him. This Hospital, especially, is indebted to him for thirty-five years of faithful work. By reason of his service in its amphitheater and in its wards, he added not only to its renown as a center of medical education, but to its glory as a refuge for the sick."

A Dispute Settled.—The dissension between the Medical Staff and the Board of Managers of the Ladies' Charity and Lying-in Hospital, Liverpool, England, has been adjusted at a meeting of the subscribers and results in a complete victory for the Medical Staff. The concessions insisted upon were entire charge of all patients by the medical officer on duty and a representation of three of the medical men in the managing board.

Revised Nomenclature of Diseases.—The committee appointed in 1892 by the Royal College of Physicians of London to revise the then authorized "Nomenclature of Diseases" has just completed the task and issued a volume of more than five hundred pages. The original edition was published in 1869, its preparation having occupied nearly twelve years. The present volume is so arranged that it will be a valuable guide to uniformity of nomenclature among nearly all of the more civilized nations, but is especially useful to English-speaking countries. Each disease is given first in English then follows the corresponding Latin, French and German names. Many important changes have been made in classification. This is particularly evident in diseases of the nervous, digestive, respiratory, and integumentary systems. The section on surgical operations has also been completely revised.

Cholera at Cairo.—The deadly virulence of the present epidemic is shown by the report made on July 2d. Of 7550, the total number of cases up to that date, 6216 had been fatal. A greater mortality (eighty-two per cent.) has seldom been observed.

An Official Report.—Mr. F. E. Moore, commercial agent of the United States at Weimar has officially reported to the State Department at Washington the results of the use of diphtheria antitoxin in the several German hospitals. His statements are in full accord with those already recorded in medical periodicals.

Remarkable Immunity.—In the recent retirement by the New York Board of Health of a long-tried and faithful em-

ployee in the person of W. J. Reynolds an instance of unusual freedom from contagion is brought to light. For more than twenty-three years it has been the daily duty of this man to personally attend to the removal of the victims, either dead or alive, of every contagious disease coming under the notice of this department. He was often compelled to carry in his arms the bodies of persons in all stages of the most infectious diseases, but always with perfect immunity to himself.

The U. S. Marine Hospital Service Warned.—Surgeon-General Wyman has received recent advices relative to smallpox in Cuba, which state that there are at least one hundred cases in the city of Santiago and that many families within a short distance of the U. S. Consulate are among the afflicted. The whole Southern coast of the island is a "plague spot of smallpox."

Honored in China.—The Order of the Double Dragon, carrying the rank of Mandarin, has been conferred upon Surgeon-Major Hueston of the British Army by the Emperor of China for services rendered the wounded during the Japanese war.

The Missouri State Medical Association.—This society, at its recent annual meeting in Sedalia, Mo., elected Dr. John H. Duncan, of Kansas City, president for the ensuing year.

The Chautauqua County Medical Society.—The annual meeting of this Society will be held at the Hotel Athenæum, Chautauqua, N. Y., Tuesday, July 14th, beginning at 11 A.M.

The Northern Tri-State Medical Association.—The regular annual meeting of this Society will be held in Angola, Ind., on Tuesday, July 21st. A long list of tempting and interesting papers is on the program.

The Cyclone as an Obstetrician.—The *Tri-State Medical Journal* is authority for the statement that in the recent cyclone that swept through the West with so much destruction, a young woman who was about to become a mother was sitting in her home, happy in the hope of the approaching event. The side of the house was blown off and she was carried by the storm across the street and landed on the opposite sidewalk. She became unconscious at the time the house was struck. When she recovered consciousness in her new location, the first sound that greeted her ears was the cry of a newly-born baby under her skirts. She gathered it up and called for help, which was promptly obtained. At last accounts both mother and baby were doing well.

The Parke Memorial.—The statue of the late Surgeon Parke, who so nobly supported the Stanley expedition in Africa, is nearly completed and will be unveiled during the early autumn on Leinster Lawn, Dublin. This is the first statue of an army surgeon to be erected in the United Kingdom and a just tribute to one who "loved his fellow-man."

Dr. Ferris as Acting Superintendent.—Dr. Albert Warren Ferris has been appointed Acting Superintendent of the private retreat for the insane at Pleasantville, N. Y., established by Dr. George C. S. Choate, who died June 28th. Dr. Ferris was for over five years the assistant physician and for a time acting superintendent of Sandford Hall, a similar institution in Flushing, N. Y.

Losses of the French Army.—The London letter of the *American Practitioner and News* states that according to an official account, the deaths of French soldiers from sickness in the Madagascar campaign greatly out-numbered those from casualties. While the enemy only killed 7 and wounded 94, 6000 died from disease, and 15,000 went on the sick list. This high percentage of mortality was eclipsed in 1802, in the Jawaca expedition, for out of 60,000 men who sailed from Brest, 50,000 died from yellow fever, and of the 10,000 men left, but 300 got back to France, and then only after a lapse of seven years. The 50,000 men died of yellow fever in four months.

The Congress of Dermatology.—The third International Congress of Dermatology will meet in London, from August 4th to 8th, of this year. The general program has been published in a recent number of this Journal. There will be a museum of drawings, casts, models, naked eye-preparations, microscopic specimens, works and atlases pertaining to diseases of the skin. There will also be an exhibition of clinical cases and demonstrations of the same, at 9 A.M. and 2 P.M. of August 5th, 6th, and 7th, and at 9 A.M. of August 8th. Anyone having anything to contribute to this department should address Dr. James Galloway, 21 Queen Anne street, Cavendish square, W. There will be an exhibition of cultures and microscopical preparations of organisms connected with the skin and its diseases. Any communications in regard to this department should be addressed to H. G. Plimmer, Esq., Wunderbau, Sydenham, London. The social side of the Congress will be: 1st, an informal reception at the International Hall, Piccadilly Circus, on August 3d, from 9 to 12 P.M.; 2d, a reception by the Lord Mayor and Lady Mayoress, at the Mansion House, on August 5th, from 9 to 11 P.M.; 3d, a dinner to the foreign members, at the Hotel Cecil, on August 7th. It is advised that foreigners should arrive in London not later than Sunday, August 2d, as Monday the 3d is a public holiday. Information in regard to hotels will be furnished on application to George Pernet, Esq., 77 Upper Gloucester place, London, N. W. George Thomas Jackson, M.D., is Foreign Secretary for the United States, and will furnish detailed information on application.

Smallpox as a Race Exterminator.—The Jenner centenary at Berlin was a great success, says the *Press and Circular*. The city authorities lent for the occasion the Festsaal of the city Rathhaus, and decorated it suitably to the occasion. About three hundred medical men took part in the commemoration, among them Dr. Bosse, the Cultus Minister, the Rector of the University, the Surgeon-general of the Army, with a number of the higher officials and several members of the Reichs-Gesundheitsamt. The medical faculty were nearly all present, and there were also deputations from nearly all the medical societies of the city. Professor Virchow opened the proceedings in

the name of the Committee of Honor. He said we lived in an era of reverence for the great benefactors of mankind. Of the number of these, as regarded the number of human beings saved, Jenner stood at the head. As an ethnologist he was impelled to mention an ethnological fact in the history of protective vaccination: "*All the peoples that had not been reached by vaccination, or that had not accepted it, had disappeared from the face of the earth, destroyed by smallpox.*" In the address of Professor Gerhardt appears the following, bearing on the thorough protection of German soldiers and the very imperfect protection of another foreign army: "The war of 1870 and 1871 furnished the most brilliant proof of the protective power of vaccination. Of the one and a half million of men composing the German army only 459 died of smallpox, while in the French army, vaccinated imperfectly or not at all, 23,400 men died of the epidemic of smallpox then raging."

CORRESPONDENCE.

HYDROTHERAPY IN THE TREATMENT OF TYPHOID FEVER.

To the Editor of THE MEDICAL NEWS:

DEAR SIR:—I note that Dr. W. J. Patek of Milwaukee, in criticizing, in THE MEDICAL NEWS, June 20, 1896, my article published in the NEWS of February 8, 1896, infers that I have "based my conclusions wholly on theoretical grounds," and that I have "evidently not had the privilege of coming in direct contact with typhoid patients, before, during, and after immersion." He also intimates that I am ignorant of the technic of the Brand treatment. Now, I am pleased to have any article discussed and criticized, but I would prefer the charge of deliberate misrepresentation to the insinuation that I would express an opinion on so important a matter without careful preparation, or on false pretenses of experience.

Naturally, in the typhoid patients who have been under my personal care—not a large number, as was admitted in the first paper, but several times the average quota of one working in a healthy city with a good water supply—immersion has not been practised. By addresses and journal articles, however, I am reasonably familiar with the utterances of most of the American and foreign advocates of immersion, though I must confess that there are so many minor differences among the various immersionists that it is a little confusing to select the orthodox method. It may be *evident* that I have "not had the privilege of coming in direct contact with typhoid patients before, during, and after immersion," but the fact remains, that I have witnessed quite a number of immersions, and have had the opportunity to watch the progress of a good many cases subjected to the treatment. At one time I found the mouth temperature of three patients immediately after the bath to be subnormal, and blueness, chilliness, etc., have been frequently observed. In fact, advocates of immersion concede these symptoms, but pass them over as "esthetic objections."

My critic is quite in error in intimating that I questioned the fairness of the statistics of my honored teachers, Professor Tyson and Professor Osler. My article had no reference whatever to their reports, but alluded to the fact that statistics in general are quite apt to be misleading and that, in the case of the new treatments of typhoid, diphtheria, etc., it is possible to obtain favorable percentages by excluding even the inevitably fatal cases which would not give a fair opportunity for any treatment, but which swell the general mortality.

Dr. Patek's observations that swimming baths of a duration, frequency, and temperature, approximately equivalent to those of the Brand treatment, have a beneficial effect on healthy persons, are the reverse of my own, but are all the more valuable on this account, since it is only by weighing the opinions and experiences of different observers that the truth can be obtained. His inference that my observations were modified by the compulsory nature of the baths is entirely incorrect.

Dr. Patek thinks it an error to consider the typhoid patient as an inert mass, and emphasizes the exercise which he obtains from rubbing himself and making movements in the water. Personally, I fail to see how even a healthy man can get, within the narrow confines of a bathtub, anything comparable to the invigorating exercise of swimming, and, time for time, or temperature for temperature, my endurance in the tub is much less than in deep water. However this may be, it is nonsense to suppose that a typhoid patient can or ought to make such movements as will render him, for practical purposes of comparison, anything more than an inert mass.

In conclusion, let me say that practical information is far superior to theorizing, yet there is such a thing as carrying pragmatism too far. The fact that the human body has great resisting power, does not warrant us in refusing to employ inductive reasoning, or properly limited analogies. Medical history has no darker pages than those recording the work of men who sneered at theories, disregarded general principles of humanity and therapeutic caution, and devoted their energies to amassing statistics.

A. L. BENEDICT, M.D.

BUFFALO, N. Y.,
June 27, 1896.

CARE IN HANDLING INFANTS.

To the Editor of THE MEDICAL NEWS:

DEAR SIR:—In THE MEDICAL NEWS of June 13th I read the "Practical Inferences from Clinical Observations in Lateral Curvature of the Spine," by A. B. Judson, M.D. I am much interested in Dr. Judson's practical writings; but the subject named affords me a text to announce my belief in one primitive cause of the "bending of the twig." Nurses and mothers, in many instances, when dressing and undressing or when bathing infants, handle them as if they could take care of their own heads, when in fact the untrained and undeveloped muscles have not the practice nor the power to support the head; consequently the head drops in whatever direction gravitation carries it when the child is held in a sitting posture. Muscles may thus be strained and retarded in their development so as not to overtake their mates on the opposite side. The head and shoulders of an infant should always rest horizontally on

the pillow or lap of the nurse, and its pelvis raised by grasping the feet while the clothing is removed and replaced over the feet instead of over the head. A child is no more able to support its head and trunk by muscular power than it is to stand or walk when it is born. Instrumental delivery may sometimes be a first cause. Whether the right-handed work of the schoolroom and the carrying of books is a more frequent cause than the carelessness of nurses, I am not prepared to answer.

N. W. LEIGHTON, M.D.

BROOKLYN,
June 22, 1896.

SOCIETY PROCEEDINGS.

THE AMERICAN SURGICAL ASSOCIATION, ANNUAL MEETING HELD AT DETROIT, MICHIGAN, MAY 26, 27, AND 28, 1896.

FIRST DAY.

The President of the Association, LOUIS MCLANE TIFFANY, M.D., of Baltimore, called the meeting to order, and read an address entitled

THE OPERATIVE TREATMENT OF TRIFACIAL NEURALGIA,

in which he stated that forty-five operators had participated in the hundred cases reported, of which number twenty-four had each operated upon one case only. He also mentioned that there was diminished sensation in these cases, and lessened lachrymation. He considered the curving of the tongue due to atrophy of the muscles, but did not understand why the perception of heat and cold should be interfered with. As to tying the carotids. Dr. Park of Buffalo had successfully done this in two cases.

DR. S. J. MIXTER of Boston, read a short paper in discussion of this subject, which was then thrown open for general discussion.

DR. W. W. KEEN of Philadelphia, was very much disappointed to learn that the mortality of operations for the relief of trifacial neuralgia was ten per cent. He had two deaths out of nine cases, one of which was due to sepsis and was avoidable. He explained the high mortality as being due, in his opinion, to the fact that the operations had been done by so many different operators, and thought that special operations should be reserved for those who have had some special training. In three of the nine cases mentioned, trouble was experienced with the cornea, but in no case was the eye lost. The following is Dr. Keen's method of dealing with corneal ulcer: Sew the lids together at the margin so as to prevent the opening of the eye, or take a circular piece of rubber plaster, cut out a circular hole in the center a little smaller than a watch glass, insert the watch glass in the hole thus made, and place this shield over the eye, the non-adhesive surface being next to the patient's eye. Although the rubber plaster does not absolutely occlude the whole space, yet the inside of the watch glass is always moist.

DR. J. EWING MEARS of Philadelphia, asked whether the President was clear in his own mind that the lesion exists in the Gasserian ganglion. If his experience with the operation upon the Gasserian ganglion demonstrates that the relief from pain is permanent, Dr. Mears felt that the real lesion had been discovered.

DR. GEORGE RYERSON FOWLER of Brooklyn, stated that in one of his cases there was a recurrence of pain, although he was absolutely certain that he had removed the ganglion. The necropsy showed the existence of a neuroma upon the stump in that portion which occupied the foramen rotundum. He fully agreed with Dr. Keen as to the necessity of keeping the eye protected, and mentioned an illustrative case. Concerning the sclerotic changes in the vessels, it may be that these are at the root of the pathology of these cases. Dr. Fowler referred to a case operated upon by Dr. Morton of Philadelphia, in which Meckel's ganglion was positively removed, and the pain returned with all its former violence in less than two years, when ligation of the common carotid gave the man permanent relief. The author mentioned other cases in which ligation of the carotid had produced excellent results, and in one of which there was a deviation of the tongue toward the side operated upon. In this case the patient was unable to straighten the tongue. He referred to one case which died during an epidemic of sepsis, and stated that he saw no reason why there should not be an epidemic of sepsis as well as of smallpox and scarlet fever.

DR. JOHN PARMENTER of Buffalo, mentioned the case of an elderly woman who had facial neuralgia, and also a small anurism of the external carotid, in whom ligation of the common carotid afforded complete recovery. He also cited a case in which he did an operation successfully on a man who had been subjected to three previous operations.

DR. H. S. WEEKS of Portland, doubted if a surgeon was justified in resorting to intracranial operations before an extracranial had been done in view of the large mortality. His plan is to trephine through the ramus of the jaw, seize the inferior dental nerve and pull it away, as he considers this method much better than cutting.

DR. N. P. DANDRIDGE of Cincinnati, cited a case on which he had operated two and a half years ago, since which time the man had been relieved from pain, but there was marked deformity of the face on account of atrophy of the muscles. There was also a small sinus leading down to dead bone.

DR. CHRISTIAN FENGER of Chicago, preferred the extracranial operation. as he considered it less dangerous. He called attention to the fact that the mortality from ligation of the common carotid was eighteen per cent.

DR. JOSEPH RANSOHOFF of Cincinnati, did not think ten per cent. a very high mortality under all circumstances, and said if all the cases were included, it would be nearer fifty per cent. In his opinion the lesion is not located in the Gasserian ganglion, but is a central affection.

DR. ROBERT ABBE of New York, said the members should not be daunted by a mortality of ten per cent., as in the next hundred cases it would be much less. In his opinion preference should be given to an anterior opera-

tion in the first place. Now that we know what we are to steer clear of, with the improvement in asepsis and the avoidance of operating on old people, the mortality should be considerably lessened.

DR. W. W. KEEN said he had ommitted to mention two methods of medical treatment which had been of great service, one recently suggested by Dr. Dana of New York, that of giving massive doses of strychnia, and the other was suggested by Esmarch, who has spoken of the value of purgatives.

DR. MAURICE H. RICHARDSON of Boston, believed that attacking the ganglion should be done as a last resort, especially in old people, and those who were unable to stand so formidable an operation as intracranial neurectomy. In many cases a simple operation would give considerable relief.

DR. FOWLER explained that the mortality of eighteen per cent. in ligations of the carotids, included cases of anurism, gunshot wounds, etc. In fifty two cases where the vessels were not affected by disease, nor complicated by carcinomatous tumors, the mortality was less than five per cent.

DR. P. S. CONNER of Cincinnati, said the two most important points were the cause of the neuralgia and the results of operative interference. In a certain proportion of cases the exemption from pain ranged from three months to three years, while in another proportion the exemption was scarcely worth mentioning, as the pain returned immediately after the operation. In some cases the loss of blood during the operation and the shock from the operation had caused periods of freedom from pain. The propriety of the operation had been established, as a man would rather take forty-nine chances out of fifty to get relief.

DR. T. A. MCGRAW of Detroit, was of the opinion that sufficient investigation had not been made of the possibility of the neuralgic conditions being due as well to motor as to sensory nerves, and stated that he was not at all sure that a division of some of the motor nerves might not be a great benefit.

DR. RICHARDSON stated that this operation had been performed and resulted in considerable facial deformity, but no relief of the neuralgia.

DR. MIXTER mentioned two cases in which merely reopening the old intracranial wound had afforded some relief.

The afternoon session was wholly given up to a consideration of

THE SURGICAL TREATMENT OF TUBERCULOSIS OF THE SOFT PARTS.

The first paper on

TUBERCULOSIS OF THE MALE GENITO-URINARY APPARATUS,

by NICHOLAS SENN, M.D., of Chicago, was read by title.

ALBERT VANDER VEER, M.D., of Albany, presented a paper upon

TUBERCULOSIS OF THE FEMALE GENITAL ORGANS (INCLUDING TUBERCULOSIS OF THE KIDNEY).

He stated that this subject had been neglected until recent years, and that the modern ideas and progress depended upon careful histological and bacteriological examinations. Tuberculosis of the female pelvic viscera was not limited to any age, the extreme limits being ten weeks and eighty-three years. External genital lesions might be confounded with tuberculosis. Heredity was important as suggesting tubercular possibilities. Tuberculosis was extremely rare in the external genitals, but by no means infrequent in the uterus. Tuberculosis of the uterus could be demonstrated by microscopic examination of the discharges and by curetting. Gonorrheal infection was often grafted upon tuberculosis. Sometimes infection took place through the fingers or the instruments or the semen. Tuberculosis originated in the tubes and infected the uterus and cervix. The uterus could be infected from without or within, and the infection was aided by a lacerated cervix, pelvic peritonitis, trauma, etc. The symptoms were local irritation, a pea-sized wart near the vaginal outlet, a discharge from the uterus, etc. The differentiation between the ulcers of syphilis and epithelioma depended on age, history, local appearances, etc. Tuberculosis of the cervix might be mistaken for cancer. Many vaginal cases were infected from the tubes, and tubercular peritonitis might infect the vagina and tubes. The author mentioned several cases illustrative of the points mentioned.

With regard to tuberculosis of the kidney, there were two forms: (1) miliary tuberculosis, and (2) caseous or true tuberculosis. The author gave the details of one or two cases and referred at some length to Kelly's nephroureterectomy.

ROBERT ABBE, M.D., of New York, read a paper upon

TUBERCULAR PERITONITIS.

In reviewing this interesting subject, Dr. Abbe thought it gave a fairer understanding of the multiform appearances of the disease if we viewed it from the standpoint of the bacillus, rather than as others have done from the gross appearance, which had led to the division into the ascitic, the dry and the caseating forms. A sudden tubercular eruption into the peritoneal cavity may be as acute in symptoms and durations as peritonitis from other causes. A slower outbreak may result in ascitic distention in three or four weeks, and a less virulent bacillus may occupy months in inducing ascites and wasting. In other cases, possibly due to the route of invasion (penetration through lymphatics communicating mucous and peritoneal serous coats or by follicular ulcers—admitting tuberculous milk to be the median of infection), a dry or adhesive form follows in which hectic and rapid wasting result. Again, the bacillus produces an outpouring of thick lymph and flocculent serum, which rapidly becomes purulent, producing unsymmetrical cakes of thickened omentum, matted coils and encapsulated purulent collections. The bacillus product rapidly caseates and ulcerating fistulæ may result. All phases of the disease may be regarded as representing the life history of the bacillus and its products. Tubercular peritonitis may be, and in the early stages often is, the only site of tubercle deposit in the patient, hence, if overcome here a practical cure often follows. Even when other phases of infection

(pleural, intestinal, bronchial) are seen, an operative cure of the peritonitis has often been followed by general recovery. The mode of entrance of the bacillus is directly through the intestinal wall or through ulcerating appendicitis or tubal or ovarian tuberculosis, or through the blood. The claims of a few recent authors to having cured tubercular peritonitis by medical treatment were reviewed and credited. The unquestioned cure of true tubercular peritonitis by laparotomy was proved by two classes of cases, those who have long survived operation, and those who have come to autopsy long afterward, have been found free from tubercles that studded the peritoneum at the time of operation. Experimental proof in animals corroborates, also operation by simple laparotomy and evacuation of the ascites. Closing the dry abdomen is credited with a large number of cures. Irrigation with warm salt solution is advocated by preference. Camphor-naphthol application, as used by Rendu, is advised for bad cases. Dr. Abbe reviewed many interesting and illustrative cases in speaking of direct medication. The many theories advanced to account for the surprising cures were carefully considered, and it was said in conclusion that the theory that is sustained by most facts was that based on the life-history of the bacillus and the capacity of the animal economy, not only to suppress the activity of the organism by encapsulating it, but to remove it by absorption. The proper opportunity for conquests is not afforded in the presence of ascitic fluid, which acts as a veritable culture bouillon, and by its fluidity aids dissemination. When, however, the peritoneum has been aroused by congestion, which follows evacuation, and a reactionary inflammation is set up, engendering cell hyperplasia, the intruder is walled in and retrograde degeneration will begin.

GEO. RYERSON FOWLER, M.D., of Brooklyn, continued the general subject by a paper on

INTRATHORACIC TUBERCULOSIS.

He went into the historical part of the disease at great length, and devoted considerable attention to the surgical treatment of pleuritis and empyema. Of all the organs in the human body the lungs are most frequently the seat of these affections. Inasmuch as there is no lung affection that cannot be complicated by tuberculosis, it follows that pleural affections are most frequently tuberculous in character. Few patients who have suffered from pleurisy escape tuberculosis, and this fact increases the importance of the surgery of pleuritic affections in their relation to tuberculosis. The author gave a brief discussion of the effects of the presence of the pleuritic effusion upon the progress of tubercular disease of the pulmonary structure. The view formerly held that the activity of the circulation in the lung tissue constituted a trustworthy means of protection against the occurrence of tubercular infection of the respiratory organs was combated, and reference was made to the observations of Laennec, who, in the early history, stated that stasis was incompatible with the progress of pulmonary tubercular affections, and Bier's observations, supported by those of Miller, in the treatment of tubercular joint disease by means of a constricting bandage was held to confirm the views of Laennec in this particular. Note was taken of the fact that in any pleuritic affection, even when due without doubt to tubercular affection, the effusion is found to be serum, the suggestion follows that this effusion possesses some resisting influence over the development of the tubercle bacillus, while it undoubtedly forms a favorable culture medium for other organisms. The application and technic of exploratory puncture or thoracentesis, incision, and drainage, and Koenig's operation, the resection of a portion of rib, were gone into quite extensively. This was followed by a consideration of the operation of thoracoplasty and its indication. Schede's operation for extensive resection of the chest-wall, including with the bony resection removal of the attached soft parts, namely, the intercostal muscles and thickened pleural membrane, was described. It was recommended that the edges of the incision should be approximated closely about the drainage-tube and the dressing should be applied in such a manner that the tube passes through these. The drainage-tube is then attached to a tube sufficiently long to lay over the side of the bed and touch the surface of a sublimate solution. When the patient can sit up the tube is fastened to a bottle at the waist, as suggested by Bulau of Hamburg. By this method of drainage the patient is saved from the discomfort produced by soiled dressings. The question of complications occurring in connection with thorocoplastic operations upon the chest-wall, namely, pulmonary thrombosis, cerebral embolism, and the resulting paralysis, was alluded to. The concensus of opinion at the present day was thought to discountenance thoracotomy in tubercular patients, preference being given to repeated puncturing or at the most the method of permanent siphonage.

The question of the direct treatment of tubercular cavities was entered into quite extensively, and it was stated that some difficulty must necessarily be experienced in the selection of proper cases. In cases in which the disease had come to a standstill, any interference would be unjustifiable, for the reason that it is these cases that undergo cure by natural processes. In addition to limiting operations on tubercular cases to those that are circumscribed, the operation may be applied to certain cases of a doubtful nature, which form at the expense of both pleura and lung, namely, pulmonary abscesses secondary to tubercular caries of the ribs. Three examples of this were quoted. The operation of resection of the lung was discussed at some length, and attention was called to the fact that the pulmonary structure differs from all other structures in the body in its susceptibility to infection and its anatomical peculiarities. The experiments of Glück of Berlin, and Hans Schmidt, upon the lower animals for resection of the lung were detailed, as also those of Virondi, who produced localized tuberculosis in the lower animals.

DEFOREST WILLARD, M.D., of Philadelphia, read the next paper, entitled

TUBERCULOSIS OF THE SUPERFICIAL GLANDS.

He first detailed the method of tubercular infection of the lymph nodes. The route of entrance is usually by very slight abrasions or injury. Slight wounds are more liable to admit bacilli, as they arouse local resistance to a

less degree than more severe injuries. The face and neck are especially common routes of entrance. The lymph glands act as filtration stations, and often prove effective in overpowering the invading foe. They are liable to be successful in proportion to their amount of resistive force. An individual's resistive force may be lessened by hereditary impairment of cells, or by the condition of the tissues.

Local karyokinetic action may be successful, or if partially successful caseation and absorption may occur with less resistive power, or if staphylococcus infection results, suppuration follows. When once the glands have become infected, they are a perpetual menace to the general system, and should be removed. Suppuration will sometimes effectually destroy all the invading bacilli, yet this is a slow and dangerous process, subjecting the individual to constant risks.

Infected glands should be removed, if possible, during the stage of induration.

The removal of tubercular glands from the neck is frequently a most serious operation, provided connective infiltration is present, and especially if the chain of glands has dipped deep beneath the cervical vessels and nerves or has extended below the clavicle. These deep glands can only be safely removed by following the line of cleavage between the gland and the protection wall, which has been partially thrown about it, each gland being cautiously shelled out.

The jugular veins, the branches of the carotids, and the pneumogastric and phrenic nerves should be carefully avoided. When a vein is injured, immediate pressure, with subsequent ligation or lateral suturing, should be performed. If the phrenic or pneumogastric are injured, they should be at once sutured with fine silk.

Great care should be exercised to prevent the discharge of pus and caseating material upon the fresh wound; if such accident occurs, the area should be thoroughly cleansed and disinfected. Temporary drainage is advisable when infection has occurred from such discharge, but in healthy operations, with clean enucleation, primary union without drainage can be secured.

In infection in the axilla, the glands should be enucleated with the same care that is employed in the removal of carcinomatous nodule. The same rule holds good in regard to glands situated in other portions of the arm. In the groin, many difficulties will be encountered, especially if the indurated glands extend deep about the femoral or saphenous veins. Secondary operations are advisable, if necessary. In cases that absolutely refuse operation, local and constitutional measures must be employed, including tuberculin and serotherapy. The author has more confidence in the local effects of iodin upon tubercular granulations than in iodoform. He has also had beneficial results from stimulation of cell growth by a mixture of aristol with nuclein or protonuclein, applied locally. Tubercularly infected glands should not be allowed to remain and contaminate the general system.

Short papers on this discussion were read by Drs. J. McFadden Gaston of Atlanta, Chas. B. Nancrede of Ann Arbor, J. R. Weist of Richmond, Ind., and Geo. W. Gay of Boston.

Second Day.

Albert T. Cabot, M.D., of Boston, opened the proceedings of the day by reading his paper upon

Does additional experience show that castration is a curative remedy in the treatment of hypertrophy of the prostate gland?

He drew the following conclusions:

1. In the matter of mortality, the operation of prostatectomy has a slight advantage over castration. It seems probable that with later statistics, reflecting the last improvements in the technic of prostatectomy, this advantage would be further increased.

2. Prostatectomy had the further advantage that it allows of a thorough examination of the bladder and of the discovery and correction of other conditions not before suspected. Stones are frequently removed in this way without adding to the gravity of the operation. In several reported cases of castration, the absence of improvement has led to subsequent discovery of stones, which have required other operations for their removal.

3. Prostatectomy has, on the other hand, the disadvantages that it confines the patient for a longer time, and that it is sometimes followed by a fistula. This occurred in one of the forty-two cases cited in this paper.

4. It is too early to know whether any permanent loss of vigor follows castration when done on old men. The nervous effects which sometimes immediately follow the operation suggest a suspicion that with the testes the system may lose some tonic effect exerted by those organs.

5. The functional results of the two operations seem at present to be as nearly equal as possible, and the tendency to relapse shows itself in about the same proportion of cases after either operation.

6. The reduction in the size of prostate after castration is largely due to a diminution of congestion. Later a degeneration and absorption of considerable portions of the gland may occur. The glandular elements are particularly affected by this atrophy.

7. Castration would seem to be especially efficacious in cases of large tense prostates when the obstruction is due to pressure of the lateral lobes upon the urethra.

8. Castration is of but little use in myomatous and fibrous prostates.

9. Prostatectomy has its especial field in the treatment of obstructing projections which act in a valvular way to close the urethra. There is, however, no form of prostatic obstruction which a skilful operator may not correct by prostatectomy.

10. Prostatectomy is then applicable to more cases than castration and is especially to be selected when an inflamed condition of the bladder makes drainage desirable.

Dr. J. Ewing Mears of Philadelphia, was very much struck with the mortality shown from the different operations. He was sorry to learn that no one had any information to offer concerning an operation suggested by himself as a substitute for castration, namely, ligature of the vas deferens.

Dr. Chas. B. Nancrede of Ann Arbor, said that as

a result of his work with the operation of castration, he had been converted from a rather doubtful attitude toward the operation to a desire and willingness to do it again. He gave at some length the details of the case operated on by himself, which did very well after the operation, but the patient died in five or six weeks from an infection of his wound.

DR. L. S. PILCHER of Brooklyn, said that from the statistics mentioned in Dr. Cabot's paper, it would seem that prostatectomy had a slight advantage over castration, not only in its results but also by affording opportunity to secure relief from other urinary complications at the time of operation. In his own hands, however, all prostatectomy operations had been failures, but if the opinions of other surgeons could be ascertained, it would probably be found that a much larger proportion of fatal results really occurred than the figures mentioned by Dr. Cabot showed. The operation of prostatectomy has only been resorted to in cases of men who manifested considerable vigor, while on the other hand, castration has been performed in cases that were already extremely feeble, and could not stand a more serious operation, and frequently by surgeons who were not particularly expert in genito-urinary work.

DR. J. MCFADDEN GASTON of Atlanta, spoke of a method of treatment that had recently been brought to his notice by a gentleman whose name he would not mention, the principle of which was to endeavor to reduce the size of the prostate by the employment of prostatic extracts in a somewhat similar way to the methods now employed with the thyroid extract.

DR. ROSWELL PARK mentioned two cases of castration performed by himself in which the subsidence in the volume of the prostrate gland was remarkably rapid and complete. In his opinion there could not be a simpler or easier operation.

DR. ROBERT ABBE spoke of one case in which he had removed both testicles under cocain, with the result that the prostate was reduced more than one-half its size. He compared the operation of castration to that of removal of the ovaries.

DR. CABOT said the most important question was not the ability of the operator, but the selection of the proper cases for the operation of castration. If a proper selection was made, he believed the mortality would be greatly reduced.

LOUIS S. PILCHER, M.D., of Brooklyn, read the next paper upon

THE AMBULATORY TREATMENT OF FRACTURES OF THE LOWER EXTREMITIES.

DR. PILCHER mentioned a large number of cases of fracture in which the ambulatory treatment had been employed, and illustrated his paper with diagram of the apparatus employed. He described in detail the manner of applying the plaster bandage so as to form a sufficiently rigid and protective case, and also explained the splints used in this method of treatment. He stated that the number of cases of fracture of the leg treated by himself up to the present time with the ambulatory dressing was twenty and the results that have followed this treatment in these cases have been very satisfactory.

DR. JOHN E. OWENS of Chicago, stated that cases of fracture of the lower extremity treated by this method might be divided into two classes, first, those that walk with the aid of crutches, but bear little or no weight upon the affected limb, and second, those that walk on the affected leg with or without the aid of cane or crutch. After describing at some length his method of applying the dressing, demonstrating the apparatus in position and referring to cases in which he had used it, he concluded: (1) That the main object in the treatment is to enable the patient in a few days to get up and walk about on the fractured leg. (2) That union is accelerated in many cases; comfort, appetite, digestion, and sleep secured; swelling, muscular atrophy, pneumonia and delirium tremens prevented and flexion and extension maintained. (3) That in the application of the dressing the foot is maintained at a right angle to the leg, and extension maintained until the deformity is corrected and the legs are of even length. (4) That the material usually employed is plaster-of-Paris in which wooden or metal strips may be included, there being a very thick plaster sole, separated from the foot by a layer of cotton about five centimeters thick, the plaster being carefully molded with the hand, so as to fit snugly against the upper end of the tibia and about the dorsum and ankle. (5) It is generally thought best not to apply the dressing until the second or third day after the accident. (6) The patient must remain under observation in order that any displacement, undue constriction, or other defect may be noted. (7) In fractures of the thigh a combination of plaster-of-Paris and glue is recommended by some, while others have used special splints. (8) The plaster may be made to include the pelvis. (9) The dressing may be applied to the leg, and then allowed to harden after which the patient's hips are raised from the bed, extension being made to correct displacement and the remainder of the dressing applied. (10) An important feature of the dressing is its strong reinforcement and close application at the upper and back part of the thigh, thus securing a firm bearing against the ischium and perineum. (11) That the sooner the immobilization is affected the less will be the swelling. (12) That the method can be applied with great satisfaction, and that an exact fit must be secured.

DR. N. P. DANDRIDGE of Cincinnati, briefly discussed this paper.

DR. CABOT said that in two cases the use of Dr. Pilcher's apparatus had been a benefit in his hands.

DRS. SENN, WILLARD, FENGER, MEARS, NANCREDE, and GAY, did not agree with the methods of treatment suggested by Drs. Pilcher and Owens.

DR. H. H. MUDD of St. Louis, thought the apparatus might work very well in certain cases.

DR. MOORE stated that he had had good results from the employment of this method of treatment in two cases.

W. W. KEEN, M.D., of Philadelphia, read a paper on

THE TREATMENT OF TRAUMATIC LESIONS OF THE KIDNEY.

After reading a tabulated list of 163 published cases of renal traumatism since 1878, the author stated that traumatic lesions have, as a rule, two advantages over the

other renal affections: (1) being apt to be unilateral, the other kidney is not injured; and (2) the injured kidney is apt to be healthy or fairly so. Gunshot wounds, on the contrary, have two disadvantages; (1) that the treatment of the kidney alone, in many cases, cannot be solely considered; and (2) if the renal substance is only moderately injured, no one would be willing to do primary nephrectomy.

As to the treatment of gunshot wounds, they may be divided into; (1) those involving only the renal substance; (2) those involving the pelvis; (3) those involving the vessels, and (4) those involving the ureter. The incision in most cases should be abdominal, either median or at the outer border of the rectus, and if the vessels are badly torn so that there has not only been a great deal of hemorrhage, but the integrity of the organ is threatened, nephrectomy should be performed.

In treating the exravasated blood in case the kidney is not removed, if the bleeding is into the peritoneal cavity, the blood must be removed by abdominal section, but if it accumulates in the perinephritic tissues alone, it may be left undisturbed.

In treating the kidney, if the wound is sufficiently large for it to prolapse, it should be sutured and replaced if its condition is suitable, and the same procedure may be carried out if the pelvis of the kidney is opened. A partial nephrectomy would be advisable if a portion of the kidney is so far severed that its future integrity is threatened, and the fragment removed.

As the dangers of rupture of the kidney are primary and secondary, the treatment may be conveniently so divided. Usually it must be decided if a nephrectomy shall be done within the first few days or even hours, but it may occasionally be postponed and become a secondary operation, while the lumbar route will be best.

Of 116 cases of rupture of the kidney reported, 66 recovered. Secondary nephrectomy is nearly twice as fatal as primary.

ROSWELL PARK, M.D., of Buffalo, presented a paper upon

ON SUSCEPTIBILITY AND IMMUNITY, WITH SPECIAL REFERENCE TO SURGICAL CASES. (To appear in an early issue of the MEDICAL NEWS.)

DUDLEY P. ALLEN, M.D., of Cleveland, presented a paper entitled

THE EFFECT OF ANESTHESIA UPON THE TEMPERATURE.

Dr. Allen dwelt very fully on the results obtained from a large number of experiments, principally upon dogs, and gave the details of each observation.

DRS. GAY, PARK, HARTE, FENGER, WILLARD, ABBE, MCGRAW, and NANCREDE heartily endorsed Dr. Allen's methods and views.

Dr. Park, representing the Committee on the Nomenclature of Tumors, presented a printed report showing the method suggested by the Committee of Classifying Tumors.

DR. J. MCFADDEN GASTON of Atlanta, demonstrated upon the cadaver, an improved method of exploring the thoracic cavity.

DR. S. H. WEEKS presented his report as a delegate to the British Medical Association in 1895.

CHRISTIAN FENGER, M.D., of Chicago, read a paper on

RETENTION FROM BENDING AND VALVE FORMATION (OBLIQUE INSERTION) IN THE BILIARY TRACT.

He demonstrated, by morbid specimens and diagrams, his method of treating this affection.

JOSEPH RANSOHOFF, M.D., of Chicago, read a paper entitled

AN UNUSUALLY LARGE PERIOSTEAL SARCOMA OF THE THIGH SUCCESSFULLY TREATED BY EXTIRPATION.

This paper was discussed by Drs. Dandridge and Gaston, who mentioned cases somewhat similar to that of Dr. Ransohoff.

DR. J. COLLINS WARREN of Boston, was elected president for the ensuing year, and Washington was selected as the place for meeting in 1897.

REVIEW.

A HANDBOOK OF MEDICAL DIAGNOSIS FOR STUDENTS. By JAMES B. HERRICK, A.B., M.D., Adjunct Professor of Medicine, Rush Medical College; Professor of Medicine, Northwestern University Woman's Medical School, etc. With 80 illustrations and 2 colored plates. Philadelphia: Lea Brothers & Co., 1895.

STANDARD manuals of diagnosis are not quite so numerous as books on many other subjects in medicine, hence the appearance of a new one arouses considerable interest. The one before us is somewhat smaller than the work of DaCosta and Musser, but much larger than the usually unsatisfactory books belonging to the class of compends. Following in its classification the plan of the newer works on the practice of medicine, it takes up, in a very thorough manner, the symptoms and differential diagnosis—the latter, where possible, in tabular form—of the entire list of diseases to be found in the most recent works. The various chemical tests introduced into clinical studies are given, and we would especially commend the section on urinary analysis. Perhaps a few words on the pentoses might have been added to the chapter. On page 299 we find a slight error to be corrected in a future edition—exogenic-torticosis should be exogenic toxicosis. The chapter on diseases of the blood is very good, and the most approved methods of staining are given. Diseases of the nervous system receive thorough treatment, and the text is helped by a number of well-chosen illustrations. The book will, we believe, hold in the English language the same rank that is occupied by Klemperer's excellent work in Germany.

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 13, 1896.

June 6th.—Passed Assistant Surgeon P. H. BRYANT, ordered to Naval Station, Newport, R. I.

Assistant Surgeon C. M. DEVALIN, detached from the Chelsea (Mass.) Hospital and ordered to the "Blake."

June 13th.—Passed Assistant Surgeon E. R. STITT, detached from the "Blake" and ordered to the "Vermont" June 15th.

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ORIGINAL ARTICLES.

POST-OPERATIVE INTESTINAL OBSTRUCTION.[1]

BY EUGENE BOISE, M.D.,
OF GRAND RAPIDS, MICH.

I SHALL, in this discussion, exclude all forms of intestinal obstruction that are not direct results of operation, and shall consider post-operative obstruction under two main forms—functional and organic. Under the term functional I shall include two opposite conditions: Tonic spasmodic contraction of the muscular coat of the intestine, and that condition properly designated paralysis. Under the term organic I shall discuss only that form of obstruction caused by adhesions, omitting those that are accidental, as volvulus, incarceration, etc.

In the majority of cases, intestinal obstruction occurring after abdominal operations is due to adhesions, either existing prior to operation and remaining unrelieved, or those which form as the direct result of the conditions caused by the operation. The clear indication in pre-existing constricting adhesions is to separate them at the time of operation. The equally clear indication in the second group is to leave the abdominal and pelvic cavities in such condition as to reduce to the minimum the liability to post-operative adhesions. How to secure this end has been, still is, and will continue to be the object of discussion.

We have, then, post-operative intestinal obstruction occurring:

1. As tonic muscular spasm.
2. As true intestinal paralysis.
3. From the formation of new adhesions.
4. As a result of pre-existing constriction not discovered or relieved at the time of operation.

That we have post-operative obstruction as the result of tonic intestinal spasm is, I believe, not generally recognized, but this condition may, and often does, occur as the result of violent stimulation of the muscles of the intestine. Landois and Stirling[2] say: "All stimuli applied to the plexus mesentericus increase peristalsis . . . which may even produce spasmodic contraction of the musculature of the intestine." Murphy relates a case[1] of lead-poisoning with absolute obstruction, which had continued five days, and in which operation revealed tetanic spasm of the muscular coat of the small intestine for a space of eight inches, so severe as to cause entire obliteration of the canal. This spasm, however caused, may persist till death. Ashton[2] relates two cases where this condition was revealed at the autopsy, one case occurring in his own practice, where death occurred on the fifth day. Autopsy revealed a tonic contraction of the small intestine for a space of about eight inches above the ileocecal valve, the canal being rendered impermeable. There were no adhesions and no signs of peritonitis. His second case was reported by Dr. Baldy, following hysterectomy. The abdomen was reopened on the sixth day, but death resulted twenty-four hours later. Autopsy revealed no peritonitis, no adhesions, but "the intestine was contracted in one or two places so as to feel like hard cords."

Intestinal peristalsis is directly under the control of the sympathetic system of nerves, and is influenced in two ways: (1) By stimuli applied to the motor nerves at their origin, during their course, or at the terminal ganglia in the muscles themselves; and (2) by agencies which influence the vascular supply. Stimulation of the motor or vasomotor nerves causes increased peristalsis; over-stimulation causes spasmodic contraction, which may become tetanic.

As shown in the case cited by Murphy, lead-poisoning may cause tetanic contraction of the intestinal muscles, because of the direct irritant action of the poison on the nerves controlling these muscles. Other poisons have a similar action. Excessive electrical stimulation will produce the same condition; and the cases reported by Dr. Ashton show that there are conditions resulting from operation that will cause the same result. In the consideration of the question as to what these conditions are, we must bear in mind the nervous mechanism of the intestinal muscles; that the nerves belong to the sympathetic system and arise from the various abdominal plexuses; that these nerves terminate in a fine network of ganglionic cells, known as Auer-

[1] Candidate's paper, presented for admission to the American Gynecological Society, May, 1896.
[2] "Manual of Physiology," p. 318.

[1] *Jour. Am. Med. Assn.*, January 4, 11, 1896.
[2] *Jour. Am. Med. Assn.*, July, 1892.

bach's plexus, situated in the muscular tissue itself; and finally that an irritant applied to the mucous lining of the canal, to its serous covering, to the nerves in their continuity, or to their origin in the various plexuses, will cause muscular contraction, and that the severity of this contraction will be proportionate to the nature and severity of the irritant impulse. This, I may say, is the keynote of the pathology of intestinal obstruction from tonic spasm. This irritant impulse may be direct, it may be reflex, or it may act through the vasomotor nerves of the intestines.

Brunton and others, by accurate experiment, have determined the fact that excess of venous blood in the intestine excites peristalsis. Therefore, any impulse that causes contraction of the arterioles, and consequent arterial anemia, causes increased peristalsis. It therefore follows that tonic spasm of the intestine may be brought about by excessive irritation of the motor nerves governing the intestinal muscles, and that this spasmodic impulse may be aggravated or exaggerated if, at the same time, the vasomotor nerves of the intestinal vessels are irritated.

There is always more or less violence to the motor mechanism of the intestinal canal during severe operations within the abdominal cavity. This violence necessarily acts as an irritant to the nerves and muscles of the intestines and causes exaggerated and irregular peristaltic action, which may be so severe as to cause intestinal obstruction by tonic spasm. This condition has been often mistaken for paralysis, but the term intestinal paralysis should be restricted to that condition of the intestinal muscle where its contractility is destroyed, the tube being dilated, rather than contracted. It may occur as a result of "muscle tire,"[1] following the excessive muscular action described above, as a result of any factor that causes pathological infiltration of the intestinal walls, or as the direct result of section of the nerves.

The first condition, muscular exhaustion, need not be dwelt upon, as it is properly an extension or sequel of excessive muscular action. The second condition may arise (1) from peritonitis, sepsis, etc., and (2) from any cause that cuts off the arterial blood-supply, as thrombus, volvulus, etc. Maas[2] relates a case (not following operation) where the intestinal wall for a space of several feet was thickened and infiltrated with pus, causing fatal obstruction. The direct cause of the infiltration was not demonstrated, but in the absence of signs of peritonitis, was thought to be due to thrombus of an artery.

Stumpf, of Munich, in a paper read before the sixth session of the Deutsche Gesellschaft für Gynæcologi, at Vienna,[1] mentions expressly as one of the factors of "Darmlähmung" eventration of the intestines. Freund, in the course of the discussion of this paper, laid special stress on eventration as a cause of intestinal paresis, but stated that, in his opinion, the cause of ileus was due, in the majority of cases, to general or circumscribed peritonitis. Some writer has stated that eventration causes a serous infiltration of the walls of the intestine, and consequent muscular paralysis. However that may be, it is probable that eventration, or long exposure of the intestines to the air, may cause true paresis in many cases, and that the effect of such exposure tends in all cases toward paresis, rather than toward spasm. We are confirmed in this belief by the combined testimony of operators, by the case of Dr. Murphy, above cited, where a spasmodically contracted intestine, which had caused total obstruction for several days, rapidly relaxed when exposed to the air, and by the fact that intestines exposed to the air for any considerable length of time become distended with gas. Again, I can conceive that bruising of the intestinal wall, as by violent and injudicious effort to release adhesions, may cause direct muscular paralysis. However this may be, we still have as operative causes of functional intestinal obstruction, severe irritation of the nerve supply, causing persistent tonic spasm, and local or general peritonitis, obstruction of arterial or nervous supply, and eventration, causing true paralysis.

Organic obstruction may be caused by pre-existing bands or by post-operative adhesions. Those adhesions that exist prior to operation are due to former peritonitis, and should be released at the time of operation. They therefore merit no further discussion in this connection.

But it is a very pertinent question, how shall we reduce to the minimum the liability to the formation of adhesions after operation? A tendency to adhesion is a peculiarity of serous membrane; and yet, as long as the integrity of its epithelium is preserved, it will remain in close contact with an opposite intact serous surface with no tendency to adherence. It would therefore appear that the one important indication is to preserve the epithelium intact to as great an extent as possible. In making a diagnosis in cases of post-operative intestinal obstruction, it is

[1] "Landois and Stirling," p. 318.
[2] *Annals of Gynecology*, February, 1895.

[1] *Centralblatt für Gyn.*, June, 1895.

practically only necessary to differentiate between functional obstruction and organic, inasmuch as such decision indicates the line of treatment. In making this diagnosis, we shall be obliged to rely mainly upon the history of the case, inasmuch as the symptoms of obstruction vary very little, whatever the cause.

After nearly all abdominal operations, even of moderate severity, there is transient obstruction, the evidence of which is intra-abdominal pain, more or less spasmodic in its nature, and generally referred to a point at or near the seat of the greatest violence. This may be caused, in part, by the constricting ligature about the stump, but is largely caused by irregular, exaggerated (or even spasmodic) peristaltic action, an effort on the part of normal intestine to overcome obstruction at this point. This obstruction, in the absence of any history of prolonged exposure of the intestines, or of partial preëxisting obstruction, may fairly be attributed to intestinal spasm, which, undisturbed, always tends to speedy relaxation, with reëstablishment of normal peristalsis. If, however, this condition be aggravated by injudicious treatment, tetanic contraction may occur, which may persist till death, or it may give rise to actual, fatal intestinal paralysis, the result of muscular exhaustion. If there has been eventration of the intestines, or prolonged exposure to the air, the conditition may well be, from the first, paresis of that portion of the bowel so exposed with exaggerated peristalsis of the healthy intestine. Or if the symptoms only show themselves with the onset of peritonitis, the condition is one of true paralysis, due to involvement of the muscular coat in the inflammatory process. In intestinal paralysis we should expect more or less gaseous distension. In tonic spasm this would probably be absent till a condition of muscular exhaustion ensued.

Again, if several days have elapsed before the symptoms of obstruction show themselves, especially if for a longer or shorter period flatus has been passed, and if there is an absence of signs of peritonitis or sepsis, we may be confident that we have to do with organic obstruction due to post-operative adhesions. Like the occurrence of post-operative hemorrhage, the question as to obstruction is largely decided at the time of operation, and our discussion of the treatment must involve to a certain extent a discussion of technic. It is important, therefore, in making an abdominal operation, that we continually keep before our minds not only those conditions that predispose to hemorrhage and sepsis, but equally those that tend to impairment of function of the intestinal canal.

Inasmuch as irritation of the motor nerves at their origin, in their continuity, or at the terminal intermuscular plexus, tends to promote excessive contraction of the muscles; and inasmuch as *severe* irritation may cause tetanic contraction, it follows that we should, during the operation, use all possible precaution that we may reduce to the minimum such irritation. This suggests the use of the smallest abdominal incision compatible with skilful work. The early and free use of the Trendelenburg position in cases where it is not absolutely contraindicated, and tender, skilful, delicate manipulation of the intestines themselves in the separation of adhesions. That we should avoid eventration of the intestines, or their prolonged exposure to the air, goes without saying. But it is probable that in the majority of cases post-operative intestinal obstruction is due directly to adhesions, which form as a result of conditions caused by the operation. This has long been recognized, and many efforts have been made to devise some means by which it can be avoided. Martin has used sterilized olive oil; Morris has used and still uses aristol to cover the denuded surfaces. Other measures have been suggested, but have proved ineffective.

There are several general principles to be kept in mind: (1) That while intestines whose peritoneal epithelium is intact will adhere to raw surfaces, much more quickly and readily will this occur if their peritoneum is abraded. (2) While they will form adhesions to an opposite abraded peritoneal surface, much more readily will they adhere to a raw surface; and (3) that two surfaces denuded of their peritoneum will almost certainly adhere.

What steps can we then take to reduce the formation of adhesions to a minimum? First, as I have remarked, avoid all unnecessary handling of the intestines. This is extremely important, and to this end the aid of posture must be invoked. Every foreign body that touches an intestine robs it correspondingly of its epithelium. It often becomes necessary to wall off the abdominal cavity, or to hold the intestines away by the interposition of gauze sponges or towels. This is an evil that should be absolutely avoided when possible, but when they must be used, let it be with the least possible violence and manipulation. Sänger has urged that, while dry gauze will, without question, remove the epithelial covering of the peritoneum, gauze saturated with a warm soda-salt solution will do much less vio-

lence, and that therefore such solution should be used. Other operators have, after trial, denied this. I believe it to be advantageous. The use of gauze packing to check excessive oozing predisposes to the formation of adhesions. It has been suggested that it might be avoided by the use of steam as advocated by Segeriff to check the bleeding, drainage being secured by the use of a glass tube, instead of gauze.

Again, it is an established principle of abdominal surgery that, where it is possible, raw surfaces should be covered with peritoneum. Much can be done in this line in the treatment of the stump left after removal of an ovary and tube. In a case uncomplicated by adhesions, the appendages can be enucleated according to the method employed by Dr. Pratt of Chicago, with almost no bleeding, and the edges of the peritoneal surfaces of the broad ligament be brought together by a continuous catgut suture, leaving only a linear denudation. Or a chain ligature may be used and the peritoneal surfaces united. A broad, thick stump is undesirable, as neither oil, aristol, nor the cautery will prevent adhesions.

After all serious abdominal operations, especially when complicated by adhesions necessitating more or less violence to the intestines, there is irregular, painful peristalsis during the first twenty-four hours or more. It is then that tonic spasmodic contraction of the intestinal muscles occurs. I have said I believe this occurs oftener than is recognized. In support of this view, let me again mention the two cases reported by Dr. Ashton, where autopsy revealed this condition. Another case was reported to me by Dr. O. E. Herrick, of obstruction following laparotomy, which resisted all measures to provoke a fecal movement, or even the escape of flatus, till finally, in desperation, a quantity of tobacco smoke was thrown into the rectum. In a very short time free fecal evacuations occurred. In my own practice, after a laparotomy for the removal of pus-tubes, efforts to produce catharsis resulted only in the production of nausea and vomiting, which rapidly became fecal. There was only moderate abdominal distension. The pulse and temperature did not indicate sepsis, and yet the most faithful and persistent effort failed to even provoke an escape of flatus. To give the patient temporary relief from the persistent vomiting, I gave a large hypodermic injection of morphin. Within one-half hour her bowels moved *copiously*.

The condition in these cases was, I am confident, tonic obstructive spasm of the intestines, aggravated by injudicious treatment. The indication in such cases is to cause relaxation of the spasm, and thus relieve the obstruction. For this purpose no drug is equal to opium in some form, preferably codein, because of its freedom from nauseating tendencies. In saying this, I am aware that I am advocating that which, in the opinion of many, is heresy. There are those who, in the strongest possible terms, condemn the use of an opiate after abdominal section, but I contend that by the free use of codein during the twenty-four or thirty-six hours immediately following an abdominal operation, the best interests of the patient are conserved. It not only relieves the pain (often severe), but, by its sedative action on the sympathetic nervous system, allays irritation and converts irregular spasmodic intestinal contraction into normal, painless, though active, peristalsis. I always use it freely in this manner, and have never had occasion to regret it. Under its use normal peristalsis, as evidenced by the escape of flatus, is more quickly established, and instead of delaying catharsis, it makes it more easily possible.

The very early use of cathartics in cases of spasmodic abdominal pain after section I cannot sanction. This pain is, as I have said, caused by irregular obstructive intestinal contractions, and the use of a cathartic before normal peristalsis has been restored aggravates the existing irritation. Sedatives are indicated. The condition is parallel to that existing in lead-colic, where no remedy will overcome the existing constipation and promote an evacuation of the bowels as readily or certainly as a free use of opium. Or to those cases cited by Brunton, of obstinate constipation complicating ovarian neuralgia, where opium not only relieved the neuralgia, but produced catharsis.

It may be urged that the use of codein after abdominal section will tend to promote the formation of adhesions by preventing peristalsis, but I cannot think so. The conditions are abnormal. It must be remembered that the intestines are no longer quiet. In addition to the stimulus of irritated nerves, there is the normal stimulus of gas in the intestinal canal. The intestines are no longer empty and flattened as at the beginning of the operation, but by the processes incident to the operation there has been a formation of more or less gas, supplying a normal stimulus to peristalsis within the canal itself. Moreover, the peristalsis is not normal nor regular. It is more or less spasmodic, even obstructive. Codein, properly used, instead of quieting normal peristalsis and allowing adhesions to form, quiets excessive peris-

talsis, regulates the action of the intestines, and renders the production of catharsis possible at an earlier period than by any other means. I believe that in serious abdominal operations the exhibition of cathartics by the stomach should be avoided till it is shown by the escape of flatus that normal peristalsis has been reëstablished, but that we should rely on the free use of codein, supplemented, if necessary, by the use of high enemata.

If, after judicious trial of the measures above detailed the symptoms of obstruction persist, the abdomen should be reopened and the cause of the obstruction sought. Nor should we hesitate to incise the intestines, if necessary, to reduce their volume. For organic obstruction there is no other remedy.

A NEW TREATMENT OF DIPHTHERIA—THE INTRAVENOUS INJECTION OF MERCURIC CHLORID. A THERAPEUTIC SUGGESTION.

BY WALTER L. PYLE, A.M., M.D.,
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FELLOW OF THE AMERICAN ACADEMY OF MEDICINE; FORMERLY RESIDENT PHYSICIAN IN THE EMERGENCY HOSPITAL, WASHINGTON, D. C.; MEMBER OF THE MEDICAL ASSOCIATION OF THE DISTRICT OF COLUMBIA, ETC.

SINCE calling the attention of the English-speaking medical profession, some fifteen months ago, to the superlative merits of the intravenous injection of mercuric chlorid in obstinate cases of organic syphilis, as practised by Professor Guido Baccelli of Rome, it has occurred to me to suggest a new field for this valuable method of medication—its use in the treatment of diphtheria.

Although to my knowledge this suggestion is original and is unsupported by clinical evidence, I feel justified in offering it to those practitioners who, either in their official or private capacities, come in constant contact with diphtheria, and I believe that a careful trial of this method will result in establishing a formidable means of combating this dreaded disease.

My reasons for this suggestion and my belief in its efficacy, despite the absence of clinical proof, which in the last year has all been directed to the serumtherapy, are as follows: (1) *The intravenous injections of mercuric chlorid are absolutely harmless*, and can be practised without pain to the patient. In such a fatal disease as diphtheria any harmless and promising method of treatment is worthy of a trial, particularly if it is not necessary to suspend any other treatment in order that it may be used. There is no reason why any of the local medications now in practice cannot be used in conjunctions with the intravenous injections. Physicians feeling assured of the reliability of the antitoxin serum, need not omit it, but use the intravenous injections conjointly. The advantage will show in the resultant mortality of the series of cases treated. (2) There is greater certainty and rapidity of absorption and therapeutic effect in the intravenous medication than in any other, which in diphtheria, of all diseases, is most necessary. A few hours gained in the treatment of diphtheria will often avert a fatal issue. The system reinforced for the combat with the toxin is less liable to be overcome, and the patient rendered helpless. (3) The therapeutic value of mercuric chlorid in the treatment of diphtheria is universally acknowledged. In addition to its established influence in lessening the plasticity of the blood, and thus diminishing fibrinous exudation, mercuric chlorid has a preservative and tonic influence on the corpuscular elements of the blood, and reinforces them against such a powerful factor of disintegration as the toxin of the Klebs-Loeffler bacillus. (4) Mercuric chlorid is one of the strongest germicides at our command. Distributed directly through the circulation to the points of infection, the maximum degree of germicidal action can be obtained. Germicides applied externally to the infected surfaces rarely reach the bacilli that are imbedded securely in the submucous tissues, and are afforded extra protection by the fibrinous exudation. It is quite possible that the intravenous injections of mercuric chlorid not only combat the disastrous effects of the toxin, but also the bacilli themselves are enfeebled by the extra amount of antisepticized blood that is called forth by the inflammatory changes in the mucous membranes. (5) Experience has proven that the therapeutic value of mercuric chlorid in diphtheria is in direct ratio with the amount of drug employed. By the intravenous injections the maximum influence of the salt can be obtained without untoward salivation or distressing gastric or dermal symptoms. A small dose administered intravenously is more potent than a much larger one given otherwise. Although great tolerance for mercuric chlorid, as well as all other mercurial salts, is shown by diphtheritic patients, yet it often happens that the ordinary administration of mercury is seriously interfered with by the foregoing complications, which sometimes even forbid its further use. (6) In spite of the persistent and meritorious investigation in the therapeusis of diphtheria no remedy is specific, and the limitation of medical science in combating the effects of the Klebs-Loeffler bacillus is a lamented fact. The intravenous injection of mercuric chlorid offers a new addition

to our medical armamentarium. It follows no new theory, it is not a fad, and to me seems substantiated by the simplest and soundest of reasoning.

It is not in the province of this paper to review the advantages of intravenous injection as a method of medication, this I have already done in THE MEDICAL NEWS of February 23, 1895, (a comprehensive epitome of which can be found in the *British Medical Journal* of August 17, 1895). The *safety* of the method and its efficacy in the treatment of syphilis has been firmly established by the Italian school, and the interested reader is referred to my paper, or to the originals in Italian of Baccelli,[1] Jemma,[2] Dagnino,[3] Colombini,[4] and Nieddu.[5] DeVecchi, now in San Francisco, has followed his *confrères* in an exhaustive exposition of this method, and Blaschko[6] has reviewed it in Germany, calling especial attention to the small amount of the drug that will prove efficient, when given in such a way that all the dose becomes effective.

For the convenience of those who are unfamiliar with the technic of the method I will quote briefly from my former article:[7]

"In the preparation of the fluid for injection the following formula is used:

℞	Mercuric chlorid . . .	1 grm.
	Sodium chlorid . . .	3 grms.
	Water . . .	1000 grms.

A small quantity of alcohol may be added to facilitate solution. The mixture should be well stirred and filtered until perfectly clear. It is advisable, but not necessary, to sterilize it, both to be perfectly aseptic and to facilitate solution.

A ligature is applied above the elbow, and any one of the superficial veins in the neighborhood, which soon become prominent, may be selected as the point of injection. The point selected and the surrounding area are then thoroughly scrubbed and disinfected with a $\frac{1}{1000}$ solution of mercuric chlorid or a five per cent. solution of carbolic acid. The needle, previously sterilized, is plunged directly toward the center, at the point selected, and a few drops of blood allowed to ooze out, assuring entrance into the vein; the barrel is then carefully applied, avoiding any entrance of air.[8]

Loosen the ligature and make the injection, at first using only one gram of the solution, and progressively increasing to as high as four grams at a dose if necessary. Occasionally on the withdrawal of the needle there is some extravasation of blood into the neighboring subcutaneous tissue; but this is absorbed very quickly, and is only of casual occurrence. Repeated injections can be made in the same vein. Jemma reported a case in which he made seventy-five injections into the median cephalic vein. This vein and the median basilic are the best to use.

There are two precautions that should be remembered: First, always use a fresh solution, which the physician should prepare himself, to be assured that the salt has not decomposed, which is often the case after the solution has been standing some time. No after-dressing is needed, and it is not necessary to cover the wound of puncture with collodion. Second, do not use a concentrated solution. That of $\frac{1}{1000}$ is to be prepared, but in late injections a $\frac{1}{500}$ solution may be used."[1]

In young children it would perhaps be advisable to start with less than one gram of the solution (.001 gram of the salt), one-half gram of the solution would be sufficient for the first injection, and then increase to 1, 1½, and 2 grams.

Intravenous medication is in its infancy, and it seems possible that this means of administering drugs, with its many advantages, will be universally used when a speedy and maximum effect is desirable. It offers a comparatively unexplored field for experimentation.

[1] *Gaz. med. di Roma*, 1893, xix, 241–245.
[2] *Riforma Med. Napoli*, 1893, ix, pp. 3, 159–163. *Cronaca de Clin. Med. di Genova*, 1892–93, p. 266, or *Boll. di R. Accad. Med. di Genova*, July, 1893.
[3] *Gazette Deg. Osped. e Del. Clinic*, 1894.
[4] *Atti della R. Acad. de fis in Siena*, iv, vol. v.
[5] *Gior Med. del R. Marina*, November, 1893.
[6] *Berlin. klin. Woch.*, November, 1894.
[7] MEDICAL NEWS, February 23, 1895, p. 197.
[8] Recent experiment has shown that a small quantity of air can be injected intravenously into a rabbit without any harmful effect.

THE SIGNIFICANCE OF MURMURS IN THE DIAGNOSIS OF VALVULAR DISEASE OF THE HEART.[2]

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AN acquaintance with the facts renders patent to the observer the avidity with which many practitioners are prone to regard as pathognomonic a sign or symptom of value, though it be yet far from possessing the dignity and importance which they attach to it. Pathognomonic signs are rare, extremely rare; they rarely ever exist. A profound acquaintance with the exact relationship existing between pathological processes and signs and symptoms of disease is the *sine qua non* of accurate diagnosis. I know of no circumstances under which a lack of appreciation of this neces-

[1] I will be glad to furnish literature on this subject to physicians not having the references quoted at their disposal.
[2] Read at the meeting of the Medical Society of the State of Pennsylvania, Harrisburg, May 19–21, 1896.

sity, from ignorance or other causes, is attended by such frequent and needless diagnostic errors, as in estimating the significance of murmurs in the diagnosis of valvular disease of the heart. We are often told that a patient with an adventitious sound heard at the apex of his heart or thereabout has a mitral murmur, and forthwith we are expected to believe that he has some disease of his mitral valves, which on the autopsy table is, but too frequently, found to have "vanished into the thin air."

The study of the exact significance of murmurs in the diagnosis of valvular disease of the heart may not inappropriately be prosecuted by arranging our cardiac cases into three distinct classes: (1) Cases in which the presence of a murmur assists in the diagnosis of some valvular lesion; (2) cases in which, despite the presence of a murmur, valvular disease may not be diagnosed; (3) cases in which valvular disease may be diagnosed without the detection of any murmur whatever. In the present communication these classes can be but alluded to. Nor can we go fully into the question of the diagnosis of valvular disease of the heart. We can do no more than merely indicate the value of other diagnostic signs, directing our attention at present solely to murmurs.

It is in cases belonging to the first two categories, cases in which we may detect a murmur in the region of the heart, that most mistakes are liable to occur, especially in view of the much greater frequency of these classes of cases. In pursuance whereof, it may therefore be remarked as the actuating motive of this communication, that a murmur alone, that is, without corroborative evidence is never diagnostic of any valvular disease of the heart. Disease at any orifice of the heart so disarranges the mechanism of a rhythmically acting and perfectly regulated machine as to of necessity always lead to consecutive changes, without the detection of which, the diagnosis of such valvular disease is never justified.

The first requisite absolutely essential to the accurate diagnosis of valvular or other disease of the heart is a thorough physical examination of the lungs and pleura. We must first determine whether or not there be present any acute or chronic, local or general, disease of the lungs or pleura. For the varying states of health and disease, to which the lungs and pleura are subject, find an expression to a certain, often marked, degree in the condition of the heart; which condition is very frequently similar to that which follows in the wake of certain valvular lesions. The truth of this statement is apparent when we consider that the accentuation of the second pulmonic sound which plays such an important rôle in the diagnosis of certain valvular lesions of the left side of the heart, is also present in cases of pneumonia, as well as in cases of pleural effusion, and the more chronic affections, such as emphysema, etc.

Considering then the question of murmurs, a murmur heard in the region of the heart must be first definitely determined to be of endocardial origin. We must eliminate all questions of exocardial genesis, all pericardial, cardio-pulmonary, so-called hemic and venous murmurs. It will be neither appropriate nor opportune to here enter upon this subject in detail. We recognize then that a murmur heard in the region of the heart may be due to incompetency of the valves or to stenosis of the orifices consequent upon endocarditis or atheroma; to dilatation of the ventricle or relaxation of its walls, inducing a relative insufficiency of the valves; to irregular action of the heart; to roughening of the pericardial surfaces (pericarditis, pleuritis); to anurism; to alteration in the constituents of the blood, anemia and chlorosis; to murmurs produced within the veins; to various anomalous conditions of the chordæ tendineæ; and to various congenital defects of the heart itself or great vessels.

We will consider somewhat in detail the most commonly occurring murmurs, without regard to the accuracy of the diagnosis of the murmur as such. I wish not only to refer to the positive signs of valvular disease but I desire also to direct some attention to the value of what may be termed the negative signs of the individual lesions. And firstly, the systolic murmur with its area of maximum intensity in the region of the apex beat, usually designated the mitral systolic murmur, and which, when detected, is usually considered sufficient evidence to consign the patient to the inconveniences and consequences of a mitral insufficiency, and which when absent usually presupposes the non-existence of such lesion. And yet how frequently is the hemic murmur of chlorosis and the other anemias heard loudest at the apex and during the systole? And how many pericardial, and cardio-pulmonary or pleuro-pericardial murmurs have their point of maximum intensity at, or are heard only in the same region, and are audible, or thought to be audible, only during systole? And on the other hand, how frequently is the murmur of mitral insufficiency not heard with maximum intensity in the region of the apex, but upward toward the

pulmonary cartilage where we usually hear loudest the so-called hemic, or accidental, or functional murmurs? The importance of a correct diagnosis is further emphasized by the fact of the frequent occurrence of these accident murmurs in apparently healthy individuals. They are usually demonstrable in most delicate women, especially in those who have thin chest-walls, and are of very frequent occurrence in young children, more particularly in those who, for any reason, are somewhat below par.

They are especially audible in the recumbent posture. This is also frequently true of the organic murmur of mitral incompetency, which may even be entirely absent at certain times, as during intercurrent diseases and in conditions of weakness and exhaustion. The diagnosis of a mitral insufficiency is justified only, when in addition to a mitral systolic murmur there are present the confirmatory evidences of the consecutive changes which such a lesion necessarily induces in the heart. We must determine the characters of the heart sounds at the apex and at the base (accentuation or not), the character of the apex beat, the area of the cardiac dulness, the condition of the precordium, the presence or absence of a thrill.

Illustrating the care essential in making a correct diagnosis, I may cite the case of a young woman suffering from an attack, which was the second, of acute articular rheumatism, when I first saw her. In conjunction with other physicians I saw her almost daily for a couple of months and carefully watched the sequence of events. During the attack of rheumatism her heart remained absolutely unaffected. As defervescence was established and convalescence begun she became very anemic. There developed a blowing systolic murmur heard loudly at the apex, but apparently with its point of maximum intensity up toward the pulmonary cartilage. There occurred some slight increase in the transverse area of the cardiac dulness. Otherwise physical examination of the heart revealed nothing abnormal. In this instance the natural inference most probable to many would have been the development of a mitral insufficiency due to endocarditis, attendant upon an attack of acute articular rheumatism. While there existed many reasons in support of such a diagnosis, weighty elements in confirmation were wanting, and there existed many negations. For the supposition of a mitral insufficiency there were the history of rheumatism, a systolic murmur heard loudest in a region where the systolic murmur of mitral insufficiency is sometimes located, and some increase in the transverse area of the cardiac dulness. But the patient had a marked anemia, the murmur was of the character and located where the hemic murmurs are most frequently heard, there was no accentuation of the second pulmonic sound, the first sound at the apex was preserved, and the slight increase in the transverse area of the cardiac dulness could readily be explained upon the assumption of a slight dilatation of the heart dependent upon the anemia. While the case might well be thought doubtful, this latter supposition was indulged in and subsequent events proved its justification. As the anemia improved so also did the physical signs of the heart; the murmur disappeared and the area of cardiac dulness once more assumed its normal limitations. The patient was seen again some months after she left the hospital, and there existed no physical signs or indications whatever of cardiac disease; the heart sounds were normal, there was no murmur, no accentuation of the pulmonic second sound, no increase in the area of cardiac dulness, no change in the precordium, no alteration in the pulse; her anemia was gone, so also were all her suspicious signs of valvular disease. The case was not one of relative mitral insufficiency, as whether relative or due to endocarditis, the physical signs of a valvular lesion, upon which the diagnosis is to be based, are the same.

A stenosis of the mitral orifice is usually diagnosed, and only then, when there is detected a diastolic or a presystolic murmur with its area of maximum intensity at the apex. This diastolic or presystolic murmur is usually said to be strictly localized at the apex, to indicate the fallacy of which statement I need but refer to the very old testimony of Bamberger,[1] or to the more recent communication of J. P. Crozer Griffith.[2] The latter diagrammatically illustrates the very wide area of distribution of many presystolic and diastolic murmurs of mitral stenosis. Of all cardiac murmurs the presystolic at the apex is usually said to be the one pathognomonic; being a positive indication of mitral stenosis. This statement is equally as fallacious as the preceding one, regarding its limitations of distribution. For many years, since Austin Flint first promulgated the statement, we have been accustomed to occasionally hearing a presystolic murmur at the apex in cases of aortic incompetency, and such a murmur has usually gone by his name. More recently Fischer[3] and Phear[4] have contributed to the lit-

[1] "Lehrbuch der Krankheiten des Herzens," 1857, p. 248.
[2] *American Journal of the Medical Sciences*, September, 1895.
[3] *Lancet*, March 5, 1895.
[4] *Lancet*, September 21, 1895.

erature of the subject, the latter collecting 48 cases of presystolic apex murmur without mitral stenosis. In 17 of these cases the aortic valves were incompetent, in 20, the pericardium was adherent, and in 13 there was present either a presystolic or a diastolic thrill. It has long been known that there may occur at the apex a presystolic or a diastolic thrill without any murmur being audible, the thrill in such cases being considered pathognomonic of the mitral stenosis. But from the evidence adduced by Phear this can no longer be considered consistent with the facts. A presystolic murmur at the apex may therefore not only be due to a mitral stenosis, but may likewise owe its origin to an aortic incompetency or to an adherent pericardium. It has also been suggested that in certain rare instances, either one or two conditions, shortening of the chordæ tendineæ, or dilatation of the left ventricle, with in either case the necessary addition of a sufficiently forcible contraction of the left auricle, may serve to produce the murmur. The condition of the chordæ tendineæ was mentioned in 9 of the cases referred to by Phear. In 3 they were healthy; in 2 shortened; in 1 shortened and thickened; in 3 thickened but not shortened. In one of the last mentioned cases there was also an adherent pericardium. It has also been suggested that in those rarer instances of presystolic apex murmur attendant upon aortic incompetency or adherent pericardium, the innervation of the heart may be in some obscure way affected, giving rise to the production of the murmur.

And further a mitral stenosis is frequently to be diagnosticated without the detection of any murmur whatever. One can at least think of the presence of a mitral stenosis when a well-marked hypertrophy of the right side of the heart and accentuation of the second pulmonic sound cannot be accounted for by any existing conditions of the lungs, and when for the accompanying weakness and smallness of the pulse no plausible explanation can be found. The presystolic murmur of mitral stenosis may be absent for months at a time, and is especially liable to be found wanting toward the close of life when cardiac weakness begins to manifest itself. Requisite for the production of the murmur is a certain strength of the left auricular contraction, which with the increasing exhaustion toward the end of life necessarily suffers.

The unwary are thus often surprised to find *post-mortem* a mitral stenosis unsuspected during life.

Again, there is another class of cases in which we can detect no presystolic or diastolic murmur, and in which the diagnosis of mitral stenosis can be made with absolute certainity. I refer to cases in which there is a reduplication of the second sound heard at the apex alone, or at least at the apex with greatest intensity. Reduplication, or splitting of the second sound, at the base of the heart is devoid of much diagnostic significance. But a reduplication of the second sound heard only at the apex, there being no such reduplication audible at the base, is diagnostic of mitral stenosis. This so-called reduplication of the second sound, which in fact occurs in quite a number of the cases of mitral stenosis, is in reality not a reduplication or splitting of the normal second sound of the heart, but is the addition of a distinct and independently produced third sound, an abnormal diastolic or presystolic tone. It is produced by the auricular contraction causing a sudden and violent presystolic impact of the blood against the pathologically tense and non-retracting mitral valves. Unless the valves have become too stiff to permit of the production of any sound at all, this abnormal sound is frequently very readily heard if it be not obscured by a co-existing or replacing murmur. This triple rhythm of the cardiac sounds may often be the only auscultatory signs of mitral stenosis. It is most frequently observed during quiet cardiac action, to be usually replaced, during excited action, by the normal double rhythm of the cardiac sounds, and a diastolic or presystolic murmur.

Particularly are we to exercise care in the diagnosis of single lesions at the mitral orifice; they are of rather infrequent occurrence. Stenosis of the mitral orifice is almost always accompanied by incompetency of the mitral valves, while the majority of cases of mitral insufficiency are attended by some degree of stenosis of the orifice. The valvular incompetency is usually the antecedent affection, the stenosis developing subsequently. We must be careful not to mistake a stenosis for an insufficiency, or a double lesion for a single one. Frequently the stenotic murmur failing, we have present only the systolic murmur of the coexisting mitral insufficiency. We must have recourse to the other physical signs in addition to the murmur. The preponderating lesion can be diagnosticated by attention to the physical signs of the individual lesions which in the single case may be more in evidence.

The murmurs produced at the aortic orifice, and usually heard with maximum intensity at or near the aortic cartilage, are the aortic systolic and aortic diastolic murmurs; and I know of no

signs, in the proper interpretation of which more errors are made than in correlating these two murmurs to the pathological conditions which give rise to them. The murmur of aortic incompetency is diastolic in time, in pursuance whereof to many, all diastolic murmurs heard with maximum intensity in the region of the aortic cartilage of necessity indicate, and the murmur alone is sufficient to diagnosticate, an aortic insufficiency. In addition to giving rise to an aortic diastolic murmur an aortic incompetency will surely be productive of other evidences of deranged cardiac mechanism without the demonstration of which the diagnosis of an aortic insufficiency is never justifiable.

We must have recourse to the other signs of the valvular lesion, and consider the character of the heart sounds at the apex and at the base, determine the area of cardiac dulness, the characteristics of the apex beat, the presence or absence of a thrill, the condition of the precordium, the pulse, the results of auscultation of the arteries, etc.

It may be asserted that an aortic diastolic murmur will so surely be accompanied by other evidences of aortic incompetency as, for diagnostic purposes, to render almost needless such careful examination; in other words. that an aortic diastolic murmur is pathognomonic of aortic insufficiency. And I will even grant that in the majority of cases this may be true, but it is not invariably so. The hemic murmur at the base of the heart, being systolic in time, will of course not be mistaken for that of aortic insufficiency. But there are other signs attendant upon anemia which may lead to confusion. I refer to the bruit in the veins. This so-called "bruit de diable" has long been known to be audible in the jugular veins, and can occasionally be heard in other veins. It is a continuous murmur, and as such it is usually appreciated. It suffers systolic and diastolic augmentations, although the latter, because of the much easier flow of the blood during that time of the cardiac cycle, is much the more intense. This murmur is not only audible in the veins of the neck, but can very frequently be heard along the right border of the sternum as far down as the second or third rib, exceptionally still lower. When heard, however, in this region, that is at the base of the heart, it usually appears simply as a diastolic murmur. Under these circumstances, attaching itself, so to speak, to the second sound of the heart, it may readily be mistaken for the diastolic murmur of aortic insufficiency. Exceptionally this murmur may be heard with great intensity low down the sternum, in which case it is probably transmitted from the inferior vena cava. This venous murmur is occasionally present in apparently healthy individuals, but is most frequently observed in those the subjects of anemia, especially chlorosis. It is of very frequent occurrence in children, as has been especially pointed out lately by Sainsbury,[1] who found it present in thirty-four of one hundred children whom he examined. These children, while possibly somewhat below par, were none the subject of any disease. The diagnosis of anemia, the cessation or diminution in intensity of the murmur upon deep pressure on the jugular (light pressure may serve to increase it), and the absence of corroborative evidences of aortic insufficiency serve to protect from diagnostic errors. Ausculting from the base of the heart toward the jugular vein one can satisfy oneself that this diastolic murmur gradually merges into a rhythmic diastolic augmentation of the continuous venous hum of the jugular. Otherwise the occurrence of an inorganic diastolic murmur is practically unknown, and the detection of such a murmur argues with the greatest probability in favor of an organic lesion.

But again, an aortic incompetency very frequently exists without there being present any diastolic murmur capable of detection. Especially is this true of the greater degrees of incompetency. Under such circumstances we have recourse to the other signs of aortic insufficiency, and the character of the pulse is such a positive indication of the condition as to often almost permit us to make the diagnosis from it alone. And it is precisely in such cases that errors are liable to occur. Between eighty and ninety per cent. of all cases of aortic incompetency are accompanied by an aortic systolic murmur without there being present any stenosis of the orifice whatever. In other words, a systolic murmur at the aortic cartilage does not indicate stenosis of the aortic orifice; such a condition being among the rarest of cardiac valvular lesions. But frequently in aortic incompetency the only murmur audible is an aortic systolic one, the second sound being absent, or almost so; or it may be feebly preserved. Under such circumstances, there being present the other physical signs of an aortic insufficiency, such an aortic systolic murmur may be made use of to supplement the diagnosis of an aortic incompetency. The genesis of this aortic systolic murmer, there being absolutely no stenosis of the aortic orifice present, has been explained upon the supposition of: (1) A great increase in the rapidity

[1] *Lancet*, February 29, 1896.

of the expulsion of an excessive quantity of blood, and a consequent excessive distension of the aorta during the ventricular systole, whereby ensue irregular movements of the walls of the aorta, which are causative of the murmur; (2) a sudden and violent meeting of the systolic stream of blood with the regurgitating stream; (3) roughness and irregularities of the aortic valves, dependent upon endocarditis or atheroma, and against which the blood impinges during systole.

An aortic stenosis is, however, characterized by the occurrence of a systolic murmur transmitted into the carotids, but with its point of maximum intensity at the aortic cartilage. The murmur alone, however, is not diagnostic of the lesion. I do not need to again review in detail the various conditions to which a systolic murmur at the base of the heart may owe its origin. The justification of the diagnosis of a stenosis of the aortic orifice is found in the demonstration of the physical signs of the physical conditions dependent upon the lesion. And particularly must I mention the "*pulsus tardus.*" We also take into consideration the other physical evidences of the lesion, not forgetting the importance of negative signs, or signs indicative of another lesion. We must bear in mind that we very frequently also hear an aortic diastolic murmur dependent upon an aortic insufficiency, with which, in fact, the majority of cases of aortic stenosis are complicated.

Of not less importance, in considering lesions at the aortic orifice, is determining the presence or absence of an aortic aneurism, which, if present, may give rise to a systolic, a diastolic, or a double murmur. But the signs and symptoms pertaining to anurism on the one hand, and to aortic disease on the other, guard against error. Of course, aortic disease and an anurism may coexist.

While by reason of their much less frequency of occurrence, valvular lesions of the right side of the heart are less liable to lead to diagnostic errors than are those of the left, still, as they do occur, it behooves us to make no mistakes. Clinically, the most important right sided lesion is a tricuspid insufficiency, which is usually relative, and secondary to some disease of the left side of the heart, most frequently at the mitral orifice.

And once again, a murmur-systolic, at the lower end of the sterum, is not diagnostic of the condition. It is usually difficult to distinguish this murmur from one produced at the mitral orifice, and which frequently accompanies it. We have more regard for the area of cardiac dulness, the non-accentuation of the previously accentuated second pulmonic sound, the result of an examination of the veins, etc. The veins show pulsations, presystolic-systolic in time, especially affecting the jugular, though they may occur in other veins, and are frequently demonstrable in the liver. These venous phenomena have elsewhere been the subject of a more detailed dissertation.[1]

We bring similar aids to assist us in the diagnosis of that much rarer and usually congenital lesion at the tricuspid orifice, stenosis. This lesion is, however, comparatively speaking of such rarity, and almost never exists without an accompanying insufficiency of the tricuspid valves, that its diagnosis is a matter of little practical moment. A diastolic or presystolic murmur would be of value in the diagnosis, as also would an examination of the veins, etc.

The lesions at the pulmonary orifice, almost without exception congenital, present physical signs the counterpart of those which accompany similar lesions at the aortic orifice. Stenosis of the pulmonary opening is of more frequent occurrence than incompetency of the pulmonary valves. It is, however, hoped that at this day no one will mistake the accidental hemic murmur, or the murmur of mitral insufficiency at times heard at the pulmonary cartilage, for an indication of pulmonary stenosis.

Of necessity, because of the complexity of the conditions, it is in cases of combined valvular lesions that more difficulty will be experienced in making the correct diagnosis. But in such cases similarly as in cases of single lesions, the diagnosis is to be based upon the demonstration of the physical signs of the pathologically changed physical condition of the heart. Of those signs the murmur, or murmurs, present, constitute a part. The detection of a murmur and the localization of it to its seat of origin, are essential elements in the diagnosis, but alone they do not justify the diagnosis. It is true that in very few conditions, save those of valvular lesions, do we meet with multiple murmurs, but it is equally true that conditions which give rise to the production of single exocardial murmurs may exist in combination. The systolic hemic murmur of anemia at the base, and the diastolic murmur transmitted from the veins may be confused with the murmur of double aortic disease. Disease of the mitral or aortic valves may coexist with pericarditis. In estimating the probability of multiple lesions we must always take into consideration the preponderance of signs suggestive

[1] *New York Medical Journal*, January 18 and 25, 1896.

of individual lesions, as the signs of one lesion are necessarily modified by the development or presence of another. Illustrative thereof I may cite the

Case of a man, aged about twenty-eight years. He had a bulging precordium, a heaving cardiac impulse, a diffuse apex beat with maximum intensity in the sixth interspace, one inch outside of the mammillary line, a presystolic thrill at the apex, great increase in the area of the cardiac dulness transversely (to the right and left), and in the direction of the long axis of the heart. On auscultation at the apex, in addition to a fairly well preserved, rather valvular-like first sound, there was a systolic murmur and a reduplication of the second sound. At the aortic cartilage, there was a systolic murmur quite different in character from that heard at the apex; the second pulmonic sound was accentuated, but at the base there was no reduplication of the second sound. The pulse, while not excessive in volume, was distinctly the *pulsus celer et altus*, the Corrigan pulse. The diagnosis was made of mitral insufficiency and stenosis and aortic insufficiency. The area of cardiac dulness indicated hypertrophy and dilatation of both sides of the heart, aortic and mitral disease. The mitral insufficiency was further indicated by the systolic murmur, the mitral stenosis by the valvular rather accentuated first sound at the apex (the other lesions should have diminished its intensity), the reduplicated second sound at the apex, and the presystolic thrill, the presence of both lesions being further confirmed by the accentuated second pulmonic sound. The aortic incompetency was indicated by the area of cardiac dulness, the character of the apex beat, and the Corrigan pulse, somewhat modified in character by the concomitant mitral disease. The systolic murmur at the aortic cartilage indicated simply disease at the aortic orifice, and not stenosis, as there was no corroborative evidence of such a lesion. The necropsy confirmed the diagnosis.

Multiplication of instances is useless.

As we are at present dealing not so much with the diagnosis of valvular lesions as with the significance of murmurs in their diagnosis, we cannot consider more in detail these interesting conditions, nor can we take up at all the study of various anomalous states inducing murmurs, such as patulous foramen ovale, defect of the interventricular septum, persistence of the ductus arteriosus, or various anomalous and pathological conditions of the chordæ tendineæ, or intraventricular bands. These latter may sometimes produce systolic murmurs, simulating mitral incompetency.

It will be noticed that I have not qualified the murmurs except by the time of their occurrence. It is not the character of a murmur, nor its area of distribution or propogation, nor its direction of transmission that determines it value in the diagnosis of valvular disease of the heart. All of these are subordinate to the time of its occurrence and the site of its production.

There is a certain analogy existing between the significance of murmurs in the diagnosis of valvular disease of the heart, and the detection of albumin in the urine in the diagnosis of nephritis. As murmurs are usually present in cases of cardiac valvular disease, so also is albumin present in the urine in the event of nephritis, but neither is pathognomonic of the condition which they attend; they both require confirmatory evidence. The analogy can be carried still further. As some cases of valvular disease may be diagnosticated without the detection of a murmur, so may we also diagnosticate nephritis in certain rather unusual instances when we fail to detect any albumin in the urine. In some interstitial cirrhotic conditions of the kidney, the specific gravity, the daily quantity of the urine, casts, etc., and the consecutive changes in the heart and circulatory apparatus are sufficient evidence upon which to base the diagnosis of nephritis although albumin be absent from the urine.

I have attempted while endeavoring not to underestimate the value of murmurs in the diagnosis of valvular disease of the heart, to suggest that they are often overestimated, and to point out that they are never of pathognomonic significance. I have endeavored to draw more attention than is usually accorded to the other and important physical signs of valvular disease of the heart. It is the other physical evidences of the necessary changes consecutive to the valvular defect that form the justification of the diagnosis. The murmur is but one element in the diagnosis, and I would almost say the least important.

CLINICAL MEMORANDA.

CASE OF TRAUMATIC TETANUS SUCCESSFULLY TREATED WITH VERATRUM VIRIDE AND GELSEMIUM.

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Guy B., a boy, aged six, while playing in his yard, barefoot, cut the ball of his left foot on a piece of glass. The wound apparently healed. Some nine days after (April 14th), he complained of stiff jaws and difficulty in swallowing. These symptoms increased until, on the night of the 16th, tetanic spasms began to manifest themselves. The cicatrix of the wound was cleaned and scraped. It seemed somewhat tender on pressure, but no foreign body was discovered. The site was scarified,

however, and turpentine and oil applied, and four-grain doses of ammonium bromid were given every two hours.

As no perceptible improvement was noted, on the 17th Norwood's tincture of veratrum viride was given, at first one drop every hour, then two drops every hour. As this did not seem to prevent the return of the spasms from time to time, fluid extract of gelsemium was given, at first in drop doses every hour, in conjunction with the veratrum, then in two-drop doses, and finally in three-drop doses. The veratrum was also increased on the 20th to three drops every hour, so that the child was taking three drops each of the veratrum viride and the gelsemium every hour, and it seemed to require this amount to control the spasms. This dosage was continued for forty-eight hours. Only once during this time did it produce active vomiting, or sufficient nausea to require an opiate to control it. When this relaxed condition was obtained, the drops were decreased to two of each on the 22d, and on the 25th to one of each, which was continued until the 27th, when the interval was lengthened to two hours, and gradually thereafter discontinued.

The ammonium bromid was given in three- to four-grain doses every two hours during this entire period.

The remedies in diminished doses were continued to the 30th of April, when the boy could open his mouth without difficulty, had a good appetite, was playful, but more boisterous in his manner than usual, or, as his mother said, "more nervous."

The remarkable thing to me was the tolerance in one so young of such powerful remedies and in such doses. It seemed to require these doses to control the conditions producing the tetanic spasms. The instructions were to decrease the amount and frequency of dose when distinct signs of nausea appeared or the signs of convulsions abated.

I had been led to think that veratrum viride might prove a valuable remedy in traumatic tetanus, as it had done in puerperal and other convulsions, and that gelsemium, in its peculiar action in causing relaxation of the muscles of the jaw, might prove a valuable adjunct, and in this case these remedies did not disappoint.

COMPOUND FRACTURES.[1]

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THE tendency has been manifested during the past few years among many of our friends who are connected with railroads to report all classes of injuries received on the rail under the general heading of "Railroad Surgery." While I have never been connected in any capacity with a railroad, I have nevertheless had much experience during the last six years in this branch of surgery. During that time more than seven hundred cases of injury have been admitted into Mercy Hospital at Big Rapids, and with the treatment of all of them I have had more or less to do. While these cases of injury have ranged all the way from insignificant bruises to severe crushing of the limbs and trunk resulting in death a few hours after admission, the majority have been cases of bruising or crushing of the legs with or without broken bones of all grades of severity. These injuries have been caused generally by the limbs having been caught between two logs, or in some accident on one of the various logging railways of Northern Michigan. I have been unable to recognize any difference in the pathological conditions in a leg crushed between two logs and one crushed between two car-couplers, and I think the term "Railroad Surgery" is not properly applied to this class of injury.

A compound fracture may vary in severity from a small puncture in the skin leading down to an ordinary fracture to a severe crushing of the soft parts with much comminution of the bones. In the less severe injuries the indications for treatment are very plain, and at the present day are usually well carried out by all practitioners. They are to clean the injured limb in the surgical sense, apply dressings that will seal the wound, and keep the bones in proper position and at rest. Careful watch should be kept of the case, and if, in spite of the aseptic precautions, suppuration ensues, free incisions should at once be made, and antiseptic measures adopted. It is in the more severe class of injuries, however, that the surgeon's judgment is put to the test, and if he attempts to save the limb the patience and perseverance will be severely tried. When called to attend a broken limb associated with extensive crushing and laceration of the soft parts, the first question to decide is whether an amputation shall be done at once, or whether an attempt will be made to save the injured member. I believe that in nearly all cases except in those in which the tissues are ground to a pulp, amputation should not be immediately performed, but that the patient should be given the benefit of delay. In the apparently hopeless cases the injured limb and surroundings should be cleaned as thoroughly as possible without increasing the traumatism, surrounded with warm antiseptic dressings, and kept at rest without attempting to place the broken bones in apposition until the inflammatory reaction following the injury has subsided. Should general gangrene of the limb ensue amputation should be performed, but if the gangrenous process is localized I should not consider it an indication for amputation even if considerable tissue is destroyed and extensive necrosis of the bone occurs. Patience, perseverance, and a thorough, painstaking application of the principles of antiseptic surgery may result in saving the limb. As soon as the inflammatory reaction has subsided the dead tissue should be removed, necrosed ends of the bones sawed off, the limb brought into a good position and maintained there in a swing, or by means of any simple retention apparatus that will permit the use of gauze dressings and irrigation of the limb.

The celebrated case of Dr. Donald Maclean reported by him in a paper read before the Ohio State Medical Society in 1894, and in this Society by Dr. Tibbals last year, is one of the most wonderful cases on record in this class of injuries. The report of that case inspired me to successfully attempt the saving of limbs that before I should have amputated, and has also induced me to again call your attention to this important subject.

[1] Read before the Michigan State Medical Society, June 4, 1896.

Without further preliminary I will now submit the report of a few cases that will illustrate the method of treatment advocated.

CASE I.—J. M., a Swede, who was admitted to Mercy Hospital, June 22, 1892, had had both legs fractured below knees the day before in an accident on the railway. The right leg sustained a simple fracture, which united in a short time. The left one, however, was caught between two logs and severely bruised, the skin being broken over a fracture at the middle third. We thoroughly cleaned the leg, placed the bones in apposition, and sutured the soft parts which healed by first intention. At the end of a month there was non-union of the tibia. A plaster dressing was then applied and the patient encouraged to move around, but after several weeks the bones were still ununited. An incision was then made over the point of fracture which was found to be very oblique, extending three inches in length of the shaft of the bone. Much fibrous tissue separating the fragments was removed and the bones fastened together with bone nails. A plaster dressing was applied and allowed to remain one week. During this time the patient felt well, had a good appetite, slept well nights, and was free from pain and fever. These favorable symptoms were considered conclusive evidence that all was well at the seat of the operation. Nevertheless, at the end of one week the patient had a severe rigor, whereupon the splint was removed and the wound found to be full of pus, and the entire leg and foot the seat of a violent erysipelatous inflammation. Free incisions were made and the disease in the leg soon brought under control, so much so that the fractured bones united without further difficulty. Not so with the foot. Necrosis of the tarsal bones supervened, necessitating several operations for the removal of dead bone. Eventually, after eight months' treatment the foot became sound and the patient began walking around with the assistance of a cane. He continued doing this several weeks when suppuration again occurred in the foot and rapid destruction of the bone ensued. By this time the patience of all concerned had been exhausted, the patient was very anxious to return to Sweden and begged for amputation. The confidence of the doctors in the powers of Nature to restore the lost bone was shaken, and the foot was amputated at a point about three inches above the ankle below the original fracture of the tibia. The stump healed kindly.

CASE II.—O. M. was admitted to the Hospital January 6, 1893, his leg having been caught between two logs, the soft parts badly crushed and lacerated, and a compound, comminuted fracture of the tibia and fibula sustained. We removed the loose fragments of bone, cleaned and crushed tissues thoroughly, and placed the broken bones in apposition. Suppuration supervened in a few days, and the patient decided to have the leg amputated, after the chances of saving it had been duly presented. This was accordingly done, and he was discharged February 20th. A little more courage on the part of the patient, and perseverance on the part of the surgeons would probably have preserved this leg.

CASE III.—L. O., a Swede, was admitted to Mercy Hospital, October 26, 1894. Eight weeks previous a compound fracture of the right leg had been sustained, and the soft parts had been much bruised and lacerated. The skin had been destroyed over a considerable area, and there were two granulating patches about the size of silver dollars when he was admitted to the Hospital. The deep tissues had healed, however, and the bone appeared to be partially united, only a slight degree of mobility being present. I encouraged the patient to walk, thinking that exercise would stimulate union. Instead the mobility increased and soon a loose fragment of bone could be detected on the anterior surface of the leg, which slipped out easily through a small incision. We then irritated the fractured tibia by driving a drill several times into the fragments and rubbing the ends together, although they were so firmly attached to each other as to permit but limited movement. The position of the limb being good and partial union having apparently occurred, the small incision was closed and the leg placed in plaster-of-Paris. The wound healed by first intention, but in four weeks the bone was found more movable than before, and the position of the fragments not so good. A free incision was then made over the broken bone, when it was discovered that the fracture had been an impacted one. The sharp posterior point of the lower fragment had been forced upward under the periosteum of the upper fragment, the detached piece previously removed having filled up the depression in the anterior surface of the limb very nicely, and thus conveyed the impression that the bones were in perfect apposition. So firmly were the fragments impacted that we found it impossible to separate them until the end of the lower fragment had been divided with the chain saw. The bones were then brought into apposition and wired. The skin was carefully sewed and antiseptic dressings applied. We had been having trouble with erysipelas in the Hospital about that time, and, although a thorough cleaning had been gone through with immediately before this operation, in a few days the patient's entire leg became the seat of a violent erysipelatous inflammation. The suppuration thus produced gave us work for many months, necessitating on two occasions the removal of dead bone from the leg. Eventually the necrotic process was arrested and the bone became firmly united. He was discharged about six months after admission.

CASE IV.—W. P. This patient had his left foot caught between two car-couplers September 1, 1894, and Dr. W. A. Kuhn of White Cloud, Mich., found the foot crushed and the lower third of the leg severely bruised, but could detect no broken bones and therefore concluded to attempt to save the leg. He made use of warm antiseptic applications but failed to restore the vitality of the injured member, and called me in consultation nine days after the injury. I found the foot gangrenous and the lower third of the leg much discolored, in fact, the discoloration extended nearly to the knee. There was, of course, nothing to do but amputate. The tissues were edematous and discolored nearly to the knee, but a line of demarcation had formed just above the ankle, and I concluded to risk something by amputating at a point two inches above the line of demarcation and through the discolored tissues,

rather than take the other alternative of a knee-joint amputation. The flaps soon became gangrenous, however, and left the bone uncovered, and twenty days after the amputation I was called upon to remove the projecting bone. The gangrenous flesh had separated and the soft parts were then covered with granulations. I removed the bone and expected that the stump would heal rapidly by granulation. I was again disappointed, however, as the soft parts again retracted, leaving the bone exposed, and on November 1st the patient was brought to Mercy Hospital, where I made a reamputation at the beginning of the upper third. He then did nicely and was soon discharged with a sound stump. An examination of the amputated foot disclosed the fact that not a single bone was broken. This was a remarkable fact when it is considered that the soft parts were literally crushed to a jelly and their vitality entirely destroyed. While this case is not one of a compound fracture I have included it in this paper because the injury was of essentially the same nature, and involved the same considerations as would a fracture case.

CASE V.—A. B. was admitted to Mercy Hospital January 22, 1895, having been brought sixteen miles in a sleigh on an exceedingly cold night. His left leg had been caught between two logs and a compound, comminuted fracture of the tibia and fibula sustained. The first metatarsal bone had also been fractured, and a portion of the bone was torn from its attachments, forced through the skin, stocking and boot, and thrown a distance of several feet from the foot. I saw him a half hour after his reception at the Hospital, when he was nearly dead from cold and loss of blood. The leg had been tightly constricted for several hours and was black and cold, especially over the top of the foot. A fragment of the tibia I found upon the leg at some distance from the wound, and, as I have stated, the greater portion of the first metatarsal bone was missing altogether. At that time I had no thought of saving the leg, but, as the patient was in no condition for an operation, I directed that stimulants be given him and that his leg be surrounded with hot water bottles. I also had the leg irrigated and covered with bichlorid gauze, but made no attempt to place the bones in apposition. The following morning the foot was still cold, black, and swollen, and his general condition was very bad. I made a number of punctures in the dorsal surface of the foot from which exuded colorless serum in large quantities. During the day his general condition improved and arrangements were made to amputate the leg on the morning of the 24th. Other physicians were invited to be present at the amputation, and all our arrangements had been made for that procedure, when I found that much of the discoloration had disappeared from the foot, that it was warm and would bleed when pricked. With the concurrence of my colleague, Dr. Burkart, I concluded to defer the amputation. I wish to say that none of us would have thought of attempting to save this limb had it not been for the encouragement received from the report of Dr. Maclean's case, and this man owes a very good leg to the fact that the doctor reported that case so promptly. We followed Dr. Maclean's advice and made no attempt to reduce the fracture or do anything at all with the leg until the inflammatory reaction had subsided. Then with the chain-saw we removed the splintered ends of the tibia and wired the fragments together. Subsequent events demonstrated that we should at the same time have amputated the large toe, which had lost its metatarsal bone, but acting on the theory of doing as little as possible, we left the toe and packed the cavity from which the metatarsal bone had been extruded with iodoform gauze. All went well for several weeks and the fractured tibia united very nicely. A large piece of skin sloughed off from the sole of the foot and the back of the heel, but the resulting ulcers healed nicely by granulation. Then suppuration commenced in the tissues of the foot, quickly followed by necrosis of the metatarsal bones. We made free openings, used the curette freely, and eventually removed all of the metatarsal bones. Fortunately, the destructive process became arrested at this point, the foot filled in and in time became entirely sound. The toes dropped back to some extent owing to the loss of the metatarsals, and when healed the foot was shorter than the other, but he had motion at the ankle, a firm foot, fully as useful for the purpose of locomotion as the other one. His leg was two inches shorter than before, but by the use of a high-heeled shoe he is able to walk very nicely without a cane. He was discharged from the Hospital July 23, 1895, six months after admission.

CASE VI.—C. S. was admitted to Mercy Hospital, April 10, 1895. He had sustained a fracture of the right femur eight weeks before, which had been put up in the usual manner with Buck's Extension Apparatus by the attending surgeon, Dr. Foster of East Jordan, Mich. Union failed to occur and after eight weeks the patient came to Big Rapids, thoroughly dissatisfied with his doctor and determined on a malpractice suit as soon as he recovered. I found a fracture in the lower third of the thigh with no union whatever, and made an incision on the outer side of the leg over the seat of the fracture. The bone had been broken in the course of attachment of the adductor magnus, and a large band of muscular tissue had been drawn between the fragments holding them apart, so that I found it impossible to bring them together without dividing the muscular band. When this had been done the fragments were exposed, the end of each cut off, and the freshened surfaces securely wired together. A spiral drainage-tube was introduced and the plaster-of-Paris dressing applied, a window being left for the exit of the drainage-tube. All went well for the first week; bloody oozing stopped, and the tube was removed. Subsequently localized suppuration occurred, necessitating the reintroduction of the tube. Under antiseptic irrigation the suppuration soon subsided, and the incision quickly healed. The bone united after some delay, and in two months the patient was discharged. Before his departure I convinced him that his doctor was not in the least to be blamed for the failure of the bone to unite, and thus averted the threatened suit. Dr. Foster wrote me recently that the patient had a good leg and was only troubled by a stiff knee, which resulted from the long confinement in a straight position. He declined to have anything done for this condition before leaving the Hospital.

CASE VII.—J. M. was injured about two o'clock in the morning October 8, 1895, by being caught in a belt. His right leg was drawn partially around a pulley, and fractured in the lower third. I saw him a half hour later in a most dirty habitation, and the boy himself was in about as filthy a condition as one can imagine, with six inches of the tibia denuded of its periosteum projecting through a hole in an exceedingly dirty trouser leg. Upon removing the trousers I discovered that a flap of skin had been torn loose from the anterior and inner sides of the leg. The apex of the flap was two inches above the inner maleolus and the base two inches below the knee. The base was attached, the flap having been made by the upper fragment of the tibia. As the leg had been drawn around the wheel, the bone had given away, and the upper fragment had torn through the soft parts, producing the large V-shaped flap described. The fracture in the tibia was a very oblique one extending through a space of three inches in the shaft of the bone. The fibula was, of course, fractured, but was not exposed to view. I requested the people to move the boy to the Hospital and met with a refusal. I then informed them that I should not attempt to save the leg in that house, that the surroundings were so dirty that no good results could be expected, and that they must take their choice of an immediate amputation or a removal to the Hospital, where I would attempt to save the leg, but that I was by no means certain of achieving that desirable result. The alternative quickly brought the family to their senses, and the patient was transferred to the operating-room at the Hospital; where we turned the hose on the patient and gave him such a cleansing as he had evidently never before had. The broken tibia was then brought in position, and secured by a silver wire suture passed transversely through the oblique fracture. Ragged fragments of tissue were removed and the V-shaped flap carefully sewed in position. Large gauze dressings were then applied and the leg placed on a posterior felt splint. The tissues had been so much bruised and lacerated that during the following week enormous quantities of bloody serum exuded from the leg. In a few days the silver wire suture became broken and was removed but no displacement of the bone occurred. A half inch margin of the V-shaped flap sloughed off. The remainder became united, and the space left by the sloughing tissue quickly filled in by granulation. At no time was there any evidence of suppuration. In six weeks the entire wound excepting the small point at the apex of the flap had firmly healed. At the apex the tip of the upper fragment of the bone was exposed, and did not cover with granulations. As the bone itself had united and as there was no suppuration, I determined to let Nature take her course for a time and permitted the boy to move around on crutches. On January 1, 1896, the bone having become firmly united, the patient left the Hospital and came to my office occasionally to have the leg dressed. A month later a thin shell of bone separated from the inner surface of the tibia, and I removed it with forceps. After that the small wound rapidly closed by granulation, and the boy was dismissed from observation about March 1st.

These cases have been selected as illustrating the improved results that may be expected from increased experience. They cover the period of my connection with Mercy Hospital and present, I hope, some evidence of professional advancement during the past six years. In cases V and VII, who to-day have good legs, I should certainly have amputated so recently as two years ago without a thought that there was the slightest probability of saving the limbs. I trust that these reports may encourage others to perseverance in the same direction when similar injuries are encountered.

MEDICAL PROGRESS.

Vibrations and Fatigue in Bicycle Riding. — TURNER reports in the *British Medical Journal* for May 16, 1896, the conclusions from a large number of experiments made in order to determine the effect of vibrations upon the body. The symptoms which usually follow a hard bicycle ride and which used to be attributed to vibration are sleeplessness, thirst, want of appetite, followed by lassitude, headache, and in severe cases, palpitation of the heart and great depression. No such symptoms are complained of by engineers nor firemen, nor were experienced by Turner after a one hundred mile ride on the front of an engine, though the vibration in that situation was much greater than occurs on any bicycle. A comparison of the excreta after hard rides with pneumatic and solid tired bicycles showed that the body waste was from ten to twenty per cent. greater with the latter, the exact amount varying according to the conditions of road and weather, and due evidently to the excess of power which was necessary to propel the solid-tired wheel, and not to excessive vibration. To make this quite certain, Turner rode twenty-five miles on a perfectly smooth track on a tricycle, shod with two-inch pneumatic tires, and an easy spring and large saddle. Vibration was at a minimum. A high wind was blowing, and as he was not in training and rode about eighteen miles an hour, he finished quite exhausted. He suffered from every symptom supposed to be due to vibration, and that night had a temperature of 102.6°. All unpleasant symptoms subsided after forty-eight hours' rest. The lesson is obvious, that, although vibration has been greatly lessened by the pneumatic tire, the danger from over-fatigue is the same as ever.

A Fetus in the Abdomen of a Man.—A remarkable case was presented before the Academy of Medicine (Paris) by LÉVY (*La Semaine Méd.*, May 6, 1896). A young man, aged nineteen, suffered for two years with an abdominal tumor. At operation, this tumor, which had grown to the size of a child's head, was found to be situated retroperitoneally between the mesenteric reduplications. It contained a yellow gelatinous fluid, and a female fetus of about the fifth month of development. The patient died twenty-four hours after operation.

The tumor was evidently to be classed among the dermoids, and was really a rudimentary twin, which after a long period of inactivity had resumed its development, and the fetus was therefore the sister and not the daughter of the patient.

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THE "DRINK CURE" IN BELLEVUE HOSPITAL.

IN a previous issue we called attention to the fact that the Commissioners of Charities in this city had set apart a ward in Bellevue Hospital for the trial of a secret "cure" for drunkenness, and that the experiment was to be carried out under the immediate surveillance of the proprietor of the remedy.

The experiment has now been completed, a fulsome report has been forwarded to the Commissioners, and the daily press has prematurely heralded throughout the country the miraculous results which have been obtained by the use of Dr. Oppenheimer's cure.

The affront and indignity offered to the physicians of Bellevue Hospital and to the profession at large by this action of the Commissioners is unprecedented in the history of their office, or in the annals of Bellevue Hospital, and it is proper to make inquiry as to the cause which led to such an action. We can do so most effectively by recounting the evolutions of the "cure." A few years ago the proprietor, who was a physician in good standing, circulated among the profession a printed communication in which he set forth that he had been unusually successful in the treatment of alcoholism, and that he would be glad to take charge of such patients, for physicians, at his house which he had converted into a sanitarium. The fact that a stock company had been organized for the treatment of inebriety by a secret measure was not mentioned. It was not until attempts were undertaken to dispose of the rights to utilize the substance in European territory, and a reorganization of the company and redistribution of the stock was made that the unwholesome aspects of the scheme came to light. That our readers may know the full scope of the undertaking and the character of the men who are advancing this enterprise, we publish in another column a nearly complete copy of the charter of the company.

That the project might have a show of respectability the names of five reputable physicians were given, who, it was said, had consented to become consultants to the Sanitarium. It came to light, however, that some of them had accepted a financial interest in the company without returning a monetary *quid pro quo*. Further gifts of stock were made among the profession and elsewhere, and so advantageously placed was this generosity that the road to his honor, the Mayor, was made easy. The motives which prompted the Mayor to urge the Commissioners, against the better judgment of the minority of that Board, to establish an unprecedented, unwarranted and unjustifiable foothold for the use of secret preparations in the hospitals under their jurisdiction can only be surmised.

The counsel of those best qualified by years of training and experience as to the advisability of such a revolutionary procedure was not sought, nor was it politely received when given unasked.

Despite the opposition of the entire Medical Board, in the face of the personal appeals of unbiased and tolerant individuals capable of clearly seeing the outcome of such a procedure, the Commissioners set apart a ward for the experimental use of a substance, the constitution of which was known to its proprietor alone. Examples of favoritism have not been wanting in previous adminis-

trations, but none surely that can in any way approach this.

A few days of trial of the politically fostered "cure" has convinced the "Experimenting Board of Commissioners" that "there is something in it." A second Keeley cure, forsooth! It has likewise convinced others that "there is something in it," viz: shares of the stock of a company which, by reason of the boom to be given by its introduction into Bellevue, promises good dividends.

At the present time the office-room of the Charity Commissioners is like the sanctum of a popular patent medicine proprietor, testimonials from grateful patients "cured," abound; while the individual member of the Commission, who has taken such a suspiciously personal interest in the experiment, is busying himself visiting "cured" cases and verifying testimonials, labor for which the Commonwealth pays him $5000 a year. The New York daily press, in the meantime, is publishing affidavits of men who have been through the "cure" and pronounce it entirely worthless.

In the future we may expect Bellevue Hospital to be made the arena where any individual with a "cure" for consumption, or the tobacco habit, or inebriety, or even for the unsavory big "G," if a reporter, an editor, and a few physicians be properly subsidized, can demonstrate that "there is something in it,"—a possession equal to a scientific corrollary for the present Commissioners. We hereby call the attention of any one in possession of such a "cure," and likewise any one who can think of a cure before the present Commission expires, that there is in New York City a magnificiently equipped hospital, with an unexcelled visiting and house staff, which is at their disposal, and which they can have for the asking, according to the precedent just established.

PRECAUTIONS IN THE PROPHYLACTIC USE OF THE ANTITOXIN OF DIPHTHERIA.

Adamkiewicz, in the *Wiener med. Presse* for May 3d, attempts an explanation of the cause of death, or alarming symptoms, subsequent to injections of *heil-serum* for the preventive treatment of the healthy. He first considers the argument brought forward by Langerhaus of Berlin, who recently had a fatal case of this nature in his own family. The latter attributed the death to the poisonous action of the antitoxin upon a healthy subject when unneutralized by a preëxistent toxin. This seems *a priori* improbable considering the large number of cases of suspected diphtheria which have been treated by antitoxin without ill-effects, and in which the suspicion has been proved unfounded. Nor does the evidence show that the injection of serum into a vein is in all cases *per se* an element of danger, since the blood is able to tolerate the introduction of considerable quantities of indifferent substances with impunity. That the fatality was due to the amount of carbolic acid in the injection is not in accordance with the known effects of that substance, and the death was far too sudden to have resulted from poisoning by the serum itself, serum intoxication having been shown by Eulenburg to be always a more or less chronic process.

The entrance of the serum into a vein and its employment in too concentrated a form having also been excluded, one is compelled to seek another cause for the intensification of its action in this case. This Adamkiewicz finds in a disturbance of the adaptive mechanism of the organism. The living body is provided with a self-regulating apparatus which protects it against noxious influences within certain limits; once these are passed the animal is lost. In his recent experiments with "cancroin" he found that several patients showed without apparent reason alarming signs of collapse after injection; and by careful exclusion was forced to conclude that the cause was sudden passage beyond the bounds of the regulating mechanism. This was confirmed by the discovery that no such effects resulted when the injection was gradually given so as to allow the organism time for adaptation; in consequence of this Adamkiewicz now injects "cancroin" in tenths of a cubic centimeter, allowing some seconds after each injection for the self-regulating mechanism to act.

He further extended his experiments to the injection of atmospheric air into the veins of a guinea-pig, and found that a considerable quantity could be taken up and eliminated without danger if it were given in small doses; thus 10 c.cm. injected in this way produced no ill-effects, while 2 c.cm. were instantly fatal when injected at

once and forcibly. Any substance, serum included, may have a double noxious action when introduced into the body, proportional to, first, the force with which it is injected, and secondly, the specificity with which it acts on the blood or through the blood on other constituents of the body. The virulence increases with the force of injection, and this may well account for the death under consideration.

RESUME OF RECENT PROGRESS IN ORTHOPEDICS.

THE OUTGROWING OF DEFORMITY.

THE closer search for first causes, which has been stimulated by the development of orthopedic surgery in the direction of prevention, as well as toward a broader and more effective treatment of deformity, has made it, more than ever before, evident that a large proportion of the disabilities of later life have their origin in early childhood; and many deformities which, in the sense of perfect cure, are hopeless when advice is asked, belong to the class that is popularly supposed to become outgrown. In estimating the value of the evidence that supports this belief, one must bear in mind the fact that the popular standard of symmetry is a low one, and that minor disabilities receive no consideration whatever. One need not look farther than the foot for an example to support this statement, for the accepted type of beauty of this useful member, at least, when it is concealed by the shoe, is one of deformity and evident disability.

If one asks the reason for an individual faith in the outgrowth of deformity, he will usually find it rests upon the fact that bowed legs become straight or straighter as they increase in length; and it is because of this proof of the corrective power of nature that a mother has expected it may be, to see the slowly increasing hump of Pott's disease finally disappear! That bowed legs, even, are not always outgrown, is easily demonstrated by observation on the streets of the city; and it is certain also that if the deformity is less marked in the adult than in the child, the moral discomfort produced by it is correspondingly greater.

However strong may be one's faith in the outgrowth of deformity, he will admit, doubtless, that a straight child is more likely to become a straight man than a crooked child, and that correction may be more effectively applied at an early than at a later period. The growing child has often been compared to the growing plant or tree that may be trained toward symmetry, or that, by neglect or accident, may become inclined toward deformity. Trees and children have the same inherent force that tends to overcome deformity, but those who wish to produce straight trees watch for the beginning of distortion, and if it may not be quickly corrected, the tree is rooted out and replaced. Children thus differ from trees, in that they are neither selected, nor can they be replaced by more promising specimens, and it would seem, therefore, that all the more care and vigilance should be exerted in preventing deformity, or in correcting it in the early stages of its development.

If, then, one is to trust in this power of nature to overcome deformity, he should have a clear apprehension of the reasons for his faith, that he may compare intelligently the probability of its realization with the danger of the neglect of timely treatment.

In the popular mind, the seriousness of deformity depends entirely upon its noticability; from this point of view, the question of outgrowth depends upon its relative proportion to the body. If it remains stationary, it will become less marked as the body increases in size, until it may finally disappear. But deformity is not, as is popularly supposed, an entity; it proceeds from many causes, and it may be divided, therefore, into many classes; but for the present purpose, two will suffice: One in which outgrowth is impossible, and another in which it is possible or probable under favorable circumstances. In the first class may be placed the congenital distortions and those which are the result of permanent injury, as from paralysis or bone or joint disease. In the second class may be included the bowed legs, the knock-knees, the weak feet, the loose joints, the round backs, the flat chests, and the like. These are often called postural deformities, because whatever may have been the first impulse toward distortion, its development is due to the influence of the force of gravity, which, in man, is more difficult to withstand, because of the upright posture which he alone assumes. This influence will be

more marked if the structure of the body is inadequate to the strain of normal use, either because of an inherited deficiency of vital energy, or because of acquired weakness, of which rachitis furnishes a familiar example. This deforming influence will be increased if the body is subjected constantly to its effects, as by the necessity for fixed attitudes to the point of fatigue in place of the constant change normal in childhood. The tendency to deformity will be favored if improper attitudes are assumed or induced by uncomfortable seats, or less directly by imperfections of eyesight or by habitual occupations in which deforming postures are assumed, influences which often work to the disadvantage of school-children. The outgrowth of deformity of this class will require an accumulation of vital force sufficient not only to withstand the force of gravity, but to draw the weakened and distorted part toward symmetry.

The natural life of the country has long been celebrated as providing the most favorable conditions for the spontaneous cure of weakness and distortion, but such complete reversal of the conditions of life is not always necessary or possible, nor is it always effective. In many instances the body may be inclined toward symmetry by simply avoiding deforming influences, which are not a necessary part of its environment, and by lessening the burdens put upon the weak child until it may be strengthened to withstand them. It is interesting to note in this connection that the term orthopedy, now modernized into orthopedic surgery, was invented by Andry, 150 years ago, to signify the treatment of the more common deformities of childhood by the simple means that might be applied by parents and nurses, and such treatment is still adequate if properly directed and seasonably employed.

The force of nature that tends to the outgrowth of deformity is a blind force, that is much less powerful in the higher than in the lower forms of life. It may be effectively utilized and guided in the face of adverse circumstances, and it may prove impotent when unassisted, even though every condition be favorable. If, then, faith in the inherent power of nature to overcome deformity is to be synonymous with neglect, it may well be replaced by a disbelief that would at least require favoring conditions for the evolution of individual deformity to symmetry.

ROYAL WHITMAN, M.D.

ECHOES AND NEWS.

Casualities of July 4th.—Two deaths occurred in Brooklyn last week from tetanus. Both were from wounds caused by firing blank cartridges from filthy toy pistols at close range on Independence day.

A New York Hospital Appointment Declined.—Dr. Thomas H. Manley, visiting surgeon to the Harlem Hospital, since it was opened ten years ago, was lately offered a position as consulting surgeon to the same service, but declined.

British Physicians.—Great Britain has on her *Medical* Register 35,000 names. Nearly 10,000 have been added during the past ten years.

A Swindler Arrested.—For several months a number of the New York hospitals have been victimized by a man representing himself as the agent of an express company, and in this capacity he collected excessive bills upon goods that never arrived. On trying this game upon the matron of the New Amsterdam Eye and Ear Hospital, his character was recognized and he was promptly arrested and convicted.

A Statue of Pasteur. — Pasteur's statue is soon to be placed in the market place at Alais, France, to commemorate his discovery of the remedies for diseases of the silkworm. It was at Alais that this work was done by the savant.

Poisonous Extracts.—Owing to the recent death of two children in Philadelphia, attributed to eating "snowballs"—a very cheap variety of water-ice sold on the streets—an analysis was undertaken by Dr. Henry Leffmann. Dr. Leffmann found the extracts used were artificial in some, containing fusel oil and analin dyes, and in others old and dangerously fermented.

Modern Psychology.—Professor Witmer of the University of Pennsylvania, will give during a summer course under the University extension auspices, twenty lectures upon this subject. In these he promises to touch upon such topics as hypnotism, phrenology, and palmistry, and will endeavor to extract any atom of truth that may exist amid the great mass of misconception and nonsensical speculation involved in these falsely called sciences. These are only incidentally treated, the real substance of his course will contain food for the strongest mental digestion.

Obituary.—Dr. Mary Elizabeth Grady of Brooklyn, who received her degree of medicine from the New York Medical College and Hospital in 1884, died at her home, June 29th, from consumption. Miss Grady, who was thirty-three years old, was also graduated from the New York Medical Ophthalmic Hospital College. She practised in Brooklyn, where she was born, and was visiting physician to the Brooklyn Memorial Hospital for Women and Children.

Dr. Samuel Sexton died in New York city, July 11th, aged sixty-three years. He received his medical degree from the University of Louisville in 1856; served during 1861 as surgeon of the Eighth Ohio Volunteers, and since that date has practised his profession in New York City. He was vice-president of the American Society of Otologists in 1886. He was for many years a surgeon of the West Side Eye and Ear Infirmary, and its chief in 1877; and was subsequently a lecturer at the New York Eye and Ear Infirmary. He wrote many articles concerning his specialty, and in 1888 published a work entitled "The Ear and its Diseases." In 1889, he was decorated by Venezuela with the medal of honor, and with admission to the rank of the third class, its highest honor, *el Busto del Libertador*. He was a member of the County Medical Society, the Academy of Medicine, and the Practitioners' Society, and of many clubs. Sexton was ingenious and inventive. He devised some instruments, and adapted an electric lamp for aural examination. He was one of the first American aural surgeons to develop in this country the operation of myringotomy, and operations on the ossicular chain, following Schwartze, Kessel, Lucæ, and others.

The American Dermatological Association.—The regular annual meeting of this Society will be held at the Hot Springs of Virginia, September 8, 9, and 10, 1896. Everything will be done to make the meeting a success, and several papers on interesting subjects have been already promised. Dr. White will open a general discussion on the subject, "What effect do Diet and Alcohol have upon the Causation and Course of the Eczematous Affections and Psoriasis?" The president, Dr. Charles W. Allen, can be relied upon to organize a most instructive and interesting meeting.

Diet and Disease.—From the report of the New York Institution for the Deaf and Dumb we learn that with an average of 400 pupils annually, aged from 2½ to 18 years, but one death has occurred in nine years among 3600 children; and this death was due to diphtheria contracted while absent from the Institution on vacation. The diet consists principally of beef and mutton, with few vegetables.

The State Board of Health and Street Refuse.—At the meeting of the State Board of Health, on June 30th, there was a discussion concerning the present manner of dumping the refuse of the city in the bay in such a place that it is carried back to the shore by the currents. Power was given to Dr. Smelzer, the secretary of the Board, to cooperate with Supervisor Delehanty of the Navy Department, in the adoption of a new system by which the present conditions will be changed, and the nuisance abated. Dr. Smelzer advocates towing the refuse ten miles beyond Sandy Hook.

Foreign Diplomas.—One of the most commendable features of the new medical law of Ohio is that it fails to recognize all foreign diplomas. The impossibility of discovering fraud and deception, when attempted by those interested in them, renders this step necessary. Besides, the examination required by the board will prove no hardship to those who really deserve recognition.

Intubation of the Duodenum.—Dr. Hemmeter has been making experiments by which he hopes to enable the surgeon to explore the duodenum by a tube inserted through the mouth. He first causes the patient to swallow a thin rubber bag with a groove along what will be its superior border. This is then inflated and the flexible tube is readily forced along this groove through the pylorus.

The American Public Health Association.—The twenty-fourth annual meeting of this Society will be held at Buffalo, N. Y., September 15–18, 1896. The Executive Committee have selected the following topics for consideration: (1) The Polution of Water Supplies; (2) The Disposal of Garbage and Refuse; (3) Animal Diseases and Animal Food; (4) The Nomenclature of Diseases and Forms of Statistics; (5) Protective Inoculations in Infectious Diseases; (6) National Health Legislation; (7) The Cause and Prevention of Diphtheria; (8) Causes and Prevention of Infant Mortality; (9) Car Sanitation; (10) The Prevention of the Spread of Yellow Fever; (11) Steamship and Steamboat Sanitation; (12) The Transportation and Disposal of the Dead; (13) The Use of Alcoholic Drinks from a Sanitary Standpoint; (14) The Centennial of Vaccination; (15) The Relation of Forestry to Public Health; (16) Transportation of Diseased Tissues by Mail; (17) River Conservancy Boards of Supervision. Upon all the above subjects special committees have been appointed. Papers will be received upon other sanitary and hygienic subjects also.

The Pearl and Rose Leaf.—Mr. Charles James Fox was well acquainted with Dr. Edward Jenner, and would have been well inclined to adopt the good doctor's views except for the fact that he had been prejudiced against the cow-pox by the antagonism of his family physician, Dr, Moseley. One day in playful vein he was bantering Dr. Jenner, and asked: "Pray Dr. Jenner, tell me in regard to the cow-pox, what is it like?" "Why, it is exactly like the section of a pearl on a rose leaf." This comparison, so true and so poetic, quite vanquished the scornful Mr. Fox.

Death After Anti-rabic Inoculation.—A lad of eighteen years was severely bitten on the hand in March, 1895, at Stockport, England, by a large dog that was subsequently proven to be rabid. On the fifth day thereafter, the boy was inoculated in the Pasteur Institute, Paris, and received treatment for eighteen days, when he was discharged. He frequently complained of pain in his wrists and ankles, and in the abdomen, where the injections were made, and never fully regained his health thereafter. For several weeks prior to his death, he experienced a tingling sensation in his injured hand and arm. On the night of June 19, 1896, he awoke crying with pains in this extremity; during the following day he had convulsions, and violent spasms of the respiratory muscles occurred when he attempted to swallow. He died with characteristic symptoms on June 20th, at 2.30 A.M.

Academy Headache.—Mr. Simeon Snell of Sheffield, England, reports in the *Medical Press and Circular* a form of headache to which he has given the above name. It has long been appreciated by a large number of those who frequent picture galleries that a few hours spent in steadily observing the paintings will almost invariably be succeeded by a headache. Mr. Snell, while investigating the causes of miner's nystagmus, a disease he has recently discussed in a most classical manner, has also discovered that the reason for these troublesome encephalalgias lies in a strain of the external muscles of the eye—especially the superior rectus and levator palpebræ. As compared with the other external ocular muscles these are known to be feeble and the continued exertion to which they are subjected, in directing the vision to those pictures hung above the line will readily account for the painful results. If the head is held well back the necessity for rotating the eyes upward may be obviated in part and the evil effect accordingly diminished.

Appointment of Dr. Barlow.—Dr. Thomas Barlow, Examiner in Medicine at the Victoria University, has been appointed Physician to the Household in Ordinary to Her Majesty. This honorable position was held, until his recent death, by the late Sir John Russell Reynolds.

The Cholera Bacillus in Europe.—Last week Professor Koch was called to Dantzig to examine the possible source of infection from which one man had died. The bacillus of cholera was discovered, but Professor Koch expressed his doubt as to its virulence being sufficient to justify fears of an epidemic.

Changes in Belgian Universities.—At both Ghent and Liége the government has made provision for increasing the number of professors in order that special branches of medicine and surgery may be more extensively taught.

CORRESPONDENCE.

QUACKERY IN BELLEVUE HOSPITAL.

To the Editor of THE MEDICAL NEWS:

DEAR SIR: In an editorial in issue of MEDICAL NEWS, dated June 27th, and entitled "The Commissioners of Charities of New York City, and a Secret Cure for Drunkenness," the action of the Commissioners of Charities in allowing quackery to secure a foothold in Bellevue Hospital is *deplored*.

This is certainly moderate language for the harshest insult ever imposed on the Medical Board of Bellevue Hospital since its organization; but for even this installment of independence, the profession at large should feel grateful, as no other medical journal in New York has taken any notice of the matter, much less hurl those anathemas of condemnation at its instigators, which they richly deserve.

Perhaps the editor is not aware of the fact that this secret remedy is owned and controlled by a stock company. The writer is cognizant of an instance in which a practitioner of this city was offered stock if he would allow his name to be used by the concern; and another, in which the proposition was indignantly refused.

The superintendent plumber lauds the remedy (!). May he not be another stockholder, anxious to give it a boom and swell his returns?

The attitude of the Medical Board of Bellevue Hospital in this instance is a matter of no consequence to the Commissioners. No. Mr. Editor, without a code, without discipline, or penalties, the body medical is in a chaotic state, and it looks very much as if that prophecy of a late venerable physician was about to be realized; who predicted that the time was near when New York would witness the greatest reign of quackery ever known in its history. When, indeed, does history record such a triumph of charlatanism, with the chief magistrate of a great city to encourage it, and one of the largest hospitals in the world with its portals wide open to receive it?

AN OBSERVER.

NEW YORK,
July 11th.

SPECIAL ARTICLE.

THE COMMISSIONERS OF CHARITIES make the following statement to the MEDICAL NEWS as to the manner in which Ward No. 33 in Bellevue Hospital has been set aside for private experimentation by Dr. Oppenheimer, with his secret remedy for alcoholism: "It was largely due to the suggestion of the Mayor, who had become impressed with the 'cure,' and advised that we consider the question of its introduction into the alcoholic ward of Bellevue Hospital. In the early part of May the attention of the Commissioners was called to the Oppenheimer treatment, and several cases came to our notice, one under the direct observation of one of the commissioners." The Medical Board of Bellevue Hospital collectively and individually remonstrated with the Commissioners, but to no avail. They had the power and were going to use it. A copy of the charter of the Hygeia Institute, of which Dr. Oppenheimer appears as president, is appended.

CERTIFICATE OF INCORPORATION OF THE HYGEIA INSTITUTE.

THIS IS TO CERTIFY that we, Jay Cæsar Guggenheimer, Theodore L. Hermann, Anthony J. Dittmar, Joseph A. Arnold, and Benjamin F. Kraft, all citizens of the United States, and citizens and residents of the City, County, and State of New York, are desirous of organizing a corporation, and do hereby form a corporation, pursuant to the laws and statutes of the State of New York, and we do hereby make, sign, acknowledge, and file this certificate for that purpose, as follows:

First. The name of the corporation is to be "Hygeia Institute."

Second. The objects for which the corporation is formed and the nature and locality of its business are as follows:

1. To conduct the business of managing hospitals and sanitariums for the cure of persons addicted to the excess-

ive use of alcoholic, malt, or spirituous liquors, intoxicating drinks, or narcotic drugs, in any and all States and Territories of the United States.

2. To buy, sell, exchange, acquire, lease, rent, or otherwise deal in any real estate for the purpose of conducting and carrying on the business above set forth.

3. To apply for, obtain, purchase, or otherwise acquire any patents, brevetes d' invention, licenses, and the like in respect of any inventions and discoveries which may seem capable of being used for any of the purposes of the company, and to use, exercise, develop, and grant licenses in respect of, and otherwise turn into account the same.

4. To cause or allow the legal title, estate, and interest in any property acquired, established, or carried on by the company, and to remain or be vested or registered in the name of or carried on by any other company or companies, foreign or domestic, formed or to be formed, and either upon trusts for or as agents or nominees of this company, or upon any other terms or conditions which the board of directors may consider for the benefit of this company, and to manage the affairs or take over and carry on the business of such company or companies so formed or to be formed, either by acquiring the shares, stocks, or other securities thereof or otherwise howsoever, and to exercise all or any of the powers of holders of shares, stocks, or securities thereof, and to receive and distribute as profits the dividends and interest on such shares, stocks, or securities, and generally to exercise all the powers capable of being conferred by section forty of "The Stock Corporations Law," as amended by chapter 688 of the laws of 1892.

Third. The amount of the capital stock shall be three hundred thousand dollars ($300,000), all consisting of common stock divided into three thousand shares of the par value of one hundred dollars each.

Fourth. The business of the company is to be transacted and located principally in the State of New York, but may be transacted and located in all of the States and Territories of the United States, and in foreign countries.

Fifth. Its principal business office will be in the City, County, and State of New York, but it may establish offices in such other States and Territories, and such foreign countries, as will best promote the purposes of its organization, as above specified.

Sixth. The number of its directors shall be five, each of whom shall be a stockholder, having at least five shares of stock.

Seventh. The names and post-office addresses of the directors for the first year will be as follows:

JAY CÆSAR GUGGENHEIMER, 69 East Ninetieth street,
THEODORE L. HERMANN, 1074 Madison avenue,
ANTHONY J. DITTMAR, 12 East 110th street,
JOSEPH A. ARNOLD, 103 West Seventieth street,
BENJAMIN F. KRAFT, 16 East Seventy-sixth street,
All in the City, County, and State of New York.

Eighth. The post-office addresses of the subscribers are as above stated, and each of them agrees to take five shares of stock in the corporation.

IN WITNESS WHEREOF, we, the subscribers, have made, signed, and acknowledged this certificate in duplicate, this 11th day of October, 1894.

JAY CÆSAR GUGGENHEIMER.
THEODORE L. HERMANN.
ANTHONY J. DITTMAR.
JOSEPH A. ARNOLD.
BENJAMIN F. KRAFT.

STATE OF NEW YORK, }
CITY AND COUNTY OF NEW YORK, } ss.:

On this 11th day of October, 1894, before me personally came, Jay Cæsar Guggenheimer, Theodore L. Hermann, Anthony J. Dittmar, Joseph A. Arnold, and Benjamin F. Kraft, all to me known, and known to me to be the individuals described in and who executed the foregoing instrument, and who to me severally acknowledged that they executed the same.

EDW. J. DWYER,
Commissioner of Deeds,
City and County of New York.

ADDENDUM.

October 30, 1894: Isaac Oppenheimer, M.D., president; Juliet Mendel, treasurer; and Theo. L. Hermann, the three constituting a majority of the directors of the Hygeia Institute, filed a sworn certificate that the capital stock had been paid in.

SOCIETY PROCEEDINGS.

ONE HUNDRED AND FIFTEENTH ANNIVERSARY OF THE MASSACHUSSETTS MEDICAL SOCIETY, HELD IN BOSTON, JUNE 9 AND 10, 1896.

FRANK K. PADDOCK, M.D., of Pittsfield, President.

THE SHATTUCK LECTURE, "THE SURGERY OF TYPHOID FEVER."

by W. W. KEEN, M.D., of Philadelphia.

HE said that twenty years ago, in delivering the Fifth Toner Lecture, he had discussed the complications and sequelæ of typhoid fever, and he now desired to supplement that lecture with a consideration of the surgery of typhoid fever, more particularly the occurrence of gangrene as a complication. During the last twenty years our views on the pathology of typhoid fever had undergone some very radical changes, but the clinical facts and deductions remain as true now as when the original lecture was delivered.

Singularly enough, he said, the occurrence of gangrene as a complication of typhoid fever, has received but little attention from either physicians or surgeons. Bourgeois, in 1857, had furnished the first serious contribution. One would suppose that gangrene would follow only severe attacks, but a large number of cases had been reported after mild attacks of the disease, so that it behooved the physician to be ever on the alert for its occurrence. It was, however, such a comparatively rare occurreuce, that men of such wide experience as Flint and Murclusion have never seen a case. Unlike the bone lesions, gangrene is not a very late sequel. As the presence of the typhoid germs had been demonstrated in the bones eighteen

months, and even six and eight years after the typhoid fever, the late occurrence of the osseous complications could be readily understood. Gangrene, on the other hand, is most commonly observed in the second or third week of the disease, never having been observed before the fourteenth day, or after the seventh week. Its development at this time may be ascribed (1) to the stronger vitality and power of resistance at the beginning; and (2) to the fact that a certain length of time is requisite for the diffusion of the bacilli and their toxic products.

Dr. Keen said, that in his former lecture he had stated that he considered gangrene due to three factors, viz.: (1) the altered blood state; (2) the weakened heart action; and (3) the mechanical difficulty of carrying on the circulation, especially in distant parts; and that all these factors acted by producing thrombi. But since the discovery of the typhoid bacillus, our views had been necessarily somewhat changed. The parts which should be specially subjected to bacteriological examination are: (1) The endocardium; (2) the endocardial clots; (3) the walls of the arteries and veins at the points of obstruction; (4) the thrombi or emboli; (5) the perivascular tissues in this neighborhood; and (6) if no coagula are visible, the gangrenous tissues themselves. Vincent had directed special attention to the significance of mixed infection. Experiment had shown that the staphylococcus was remarkably inimical to the growth of the typhoid bacillus, but that when mixed with streptococci, the typhoid bacilli grew vigorously. In 41 cases of typhoid fever combined with various suppurative processes, it was found that in 32 the complication was due to the aureus or albus. All of these cases recovered in spite of multiple suppuration and periostitis. On the other hand, in 8 cases in which the streptococcus was present, 5 died, showing a striking difference in the fatality of the two varieties of mixed infection. The typhoid bacilli are most numerous in the blood during the first twelve days, and from that time on diminish rapidly, and are only found exceptionally in the fifth or sixth week. They probably reach the blood through the lymphatics. They have been found occasionally in organs which could only be reached by the blood where there is arterial thrombosis, the resulting gangrene is usually dry; but occasionally the veins become obstructed, and then a part or all of a limb may fall into sudden ruin from moist gangrene. Numerous bacteriological examinations now make it reasonable to believe that when the typhoid bacilli are found in pure culture in an abscess, they are its pathological cause.

The speaker said that the cause of the gangrene was obstruction of the circulation, and this obstruction prevented itself in four varieties, viz.: (1) Arterial emboli of cardiac origin; (2) arterial thrombosis arising in the vessel itself; (3) venous thrombosis of the same order; and (4) thrombi in the peripheral vessels. As the circulation was not so completely cut off in venous, as in arterial thrombosis, gangrene was not so likely to result from venous thrombosis. In both varieties, but particularly in the arterial form, the clots are often discontinuous. Occasionally, venous thrombosis was followed by sudden death. Both forms of thrombosis are apt to give rise to a symmetrical gangrene which closely resembles Reynaud's disease.

Regarding the symptoms, it might be said that toward the end of the fever, or early in convalescence, a sudden, severe, and persistent pain would be felt either at the seat of the gangrene, or in the obstructed part, and radiating to the periphery. Following this there would be coldness, numbness, discoloration, and the other usual evidences of gangrene. The pulsation of the affected vessel near the gangrenous area would be found quite feeble, and near the obstructed portion the vessel would feel like a cord. When the primary obstruction was in the vein, and was extensive, it was very apt to be symmetrical. In his Toner lecture he had reported 113 cases of gangrene. To this he could now add 90, or a total of 203 reported cases in fifty years. Age had but little influence on gangrene in connection with typhoid fever, but not so with sex, for, out of 155 cases, 90 were males and 65 females. In 214 cases in which the location of the gangrene was studied; in 146 it was in the lower extremities and genitals, and in 16 in such peripheral distributions of the vascular system as the ears and nose. Gangrene, due to venous thrombosis, is most commonly found in the lower extremities. Of 41 arterial cases, 18 occurred in the third week; of 107 venous cases, 40 occurred in the third week—in other words, 58, or 39.2 per cent. developed in the second or third weeks. Just as in gangrene from other causes—often of non-bacterial origin—the legs suffer more than the other parts of the body; but of 46 cases of arterial gangrene, 8 involved both sides, 19 the right side, and the same number the left side. On the other hand, in the venous cases, both sides were affected in only 4 instances, the right in 10, and the left in 38. He was of the opinion that the left side was more often affected, because the left common iliac vein is subjected to compression as it passes under the right common iliac artery. Gangrene of the genitals was more commonly seen in older subjects.

As to treatment, it might well be said that the most important was the preventive treatment, *e.g.*, the securing of good food and air; aiding the flagging heart by alcoholic and other cardiac stimulants, and stimulating the peripheral circulation by faradization. In giving baths great care should be taken to avoid bruising the body or limbs. After gangrene was actually present, the important thing was to keep the parts clean by the application of an antiseptic dressing. In gangrene of the head and neck, operative interference was, of course, limited to the removal of the gangrenous tissue. Where amputation is demanded it should not be done until a final line of demarcation had formed. The leg should be emptied of blood by elevating it, but the elastic bandage should not be employed, but by its compression, an already existing thrombus might be broken up, or septic matter forced into the general circulation. Owing to the obstruction to the circulation, the bleeding will naturally be less than usual, but it should be constantly borne in mind that such patients have not one drop of blood to lose. The surgeon should not delay amputation long after the line of demarcation had formed.

Section on Medicine.

Dr. A. L. Mason of Boston, chairman.

J. H. McCollom, M.D., of Boston, read a paper on

diphtheria antitoxin.

He said that diphtheria antitoxin had been on trial for something over three years now, and the consensus of opinion was that it was a remedy of great value in the treatment of diphtheria. In the Boston City Hospital, in 1891, 237 cases of diphtheria was treated, with 105 deaths; in 1892–93, 387, with 185 deaths; in 1893–94, 438, with 203 deaths; in 1894–95, when antitoxin was used in only a few cases, 698 cases were treated with 266 deaths. This gave a total of 1760 cases treated, with 759 deaths, or 43 per cent., which was about the average death-rate in the hospitals, both in this country and in Europe, before the introduction of antitoxin. In the City of Boston, from 1878 to 1894, the average death-rate in the city at large was 30.7 per cent.; the lowest death-rate having been 27.18 per cent., and the highest 35.7 per cent. We thus have a total of 24,813 cases from which to determine the average fatality of the disease. From September 1, 1895, to May 1, 1896, in the Boston City Hospital, 1359 cases were treated with antitoxin, with 170 deaths, or a mortality of 12.51 per cent. Most of these cases were severe. In 1895, 4059 cases of diphtheria were reported to the Board of Health, and 588 deaths, or a mortality of 14.48 per cent. These cases include many mild ones, and some of them were undoubtedly treated with antitoxin, but just how many it was impossible to determine. To show the influence of age, the following statistics were given of the cases admitted during eight months, all of them receiving antitoxin: Seventeen under one year, 3 deaths, or 17.6 per cent.; 74 from one to two years, 20 deaths, or 27 per cent.; 136 between two and three years, 37 deaths, or 27 per cent.; 329 between three and five years, 55 deaths, or 16.7 per cent.; 410 between five and ten years, 39 deaths, or 9.5 per cent.; 187 between ten and twenty years, 9 deaths, or 4.8 per cent., and 206 twenty years old and upward, 7 deaths, or 3.4 per cent. The highest death-rate—27 per cent.—was naturally in those under three years old, yet when this is compared with the death-rate before the introduction of antitoxin—46 per cent.—it is evident that the mortality has been greatly reduced. In all of these cases the antitoxin was administered shortly after their admission, and although a bacteriological examination was made in every instance, it was not thought wise to delay the use of the serum until the result of such examination had been made known. Of the 1359 cases admitted, 53 died within a very few hours after admission; if these were eliminated the mortality would be only 8.9 per cent. If the 74 deaths occurring within 48 hours after admission were included, the mortality would be reduced to 7.4 per cent. In many of the operative cases a very marked improvement followed the use of the antitoxin. Prior to January, 1895, the mortality in the intubated cases was 83 per cent., as against a mortality of 46 per cent. in the last few months. It seems reasonable to suppose that this is due to the influence of the antitoxin. The antitoxin employed in the Hospital was that prepared by Dr. H. C. Ernst, of which the usual initial dose was 5 to 10 cc.

The speaker said that after the injection of antitoxin the membrane would be seen to become detached at the edges and to present an appearance so characteristic that he was willing to assert that he could go through a ward, and, merely by the appearance of the membrane, pick out the cases that had received antitoxin within the preceding forty-eight hours. In no case had the membrane reformed to any extent, and in no instance had there been any serious consequences from the use of the antitoxin. In a few cases in which abscess had occurred, cultures showed a pure growth of streptococcus. Urticaria had occurred in a considerable proportion of the cases, and there had been occasional eruptions, closely resembling either measles or scarlet fever. The local treatment had consisted in irrigations with hot saline solutions. An analysis of 83 cases in which the urine had been examined, both before and after the use of antitoxin, showed the urine free from albumin in 38, a diminution in the albumin in 11, and an increase in 4. In the cases subjected to early treatment, paralysis rarely occurred, but in those coming under observation at a late stage of the disease, paralysis had been observed in a large proportion of cases. In a very large proportion of the cases of diphtheria, the fatal issue was directly due to broncho-pneumonia.

Henry Jackson, M.D., of Boston, read a paper entitled

treatment of diseases other than diphtheria by antitoxins.

He said that as yet the composition of antitoxin was not definitely known.

In 1893 Klempe reported six cases in which he had tried upon the human subject, for the relief of pneumonia, injections of the pneumococcus, and, he thought, with fairly good results. So far, however, no practical benefit has been derived from this line of treatment. Theoretically, we ought not to expect to cure a lung, already diseased, by injections of this character; all that we ought to hope for would be the prevention of further extension of the disease process.

Regarding tetanus, it was to be noted that clinically it was most commonly found in injuries to the extremities 84 per cent. in a series of 395 cases. In 1885, Nicolai had found that garden earth produced this disease, and in 1886 Rosenbach succeeded in producing tetanus in the lower animals by injecting them with flesh from a person ill with the disease. He also described the bacillus, although he did not succeed in getting it pure. As the tetanus bacilli grow by spore formation, it is difficult to kill them. It should be remembered, however, that while they resist the action of strong chemicals, they are destroyed by boiling for five minutes. In 1890, Behring and Kitasato (?) published an article on the immunity of man and animals from tetanus by the use of injections, claiming not only to be able to produce immunity, but to cure one already affected with the disease. Other observers, however, had failed to confirm these claims made by Behring as to the *curative* property of the serum. An analysis, the speaker said, had been attempted in the case of this

antitoxin, with the following results: (1) It is an albuminoid body, being destroyed by a temperature of 68° C., but not affected by a temperature of 60° C.; (2) it cannot be dialyzed; (3) mineral acids destroy it, and (4) when dried *in vacuo*, it retains the original properties of the serum.

A study of a large number of cases gives a mortality of 80 to 90 per cent. in the acute, and 50 per cent. in the chronic form. The longer the duration of the disease after the onset of the symptoms, the better the prognosis. So far as he had been able to ascertain, the antitoxin had been used in 44 cases, in 40 of which the disease had followed injuries to the extremities. The mortality was 36 per cent. Of the 27 cases that recovered, the period of incubation in more than half of them was between the fifth and fifteenth day. One case was referred to in which the symptoms had been very slow in developing—not until the nineteenth day. When they did develop, however, they were terribly severe. Gibier's tetanus antitoxin was then injected, and with such marked benefit as to make it incumbent upon the physician to give this treatment a trial in every case of tetanus.

Extensive experiments, Dr. Jackson said, had been carried on by Marmorek with the antistreptococcus serum. He claims that the injection of a daily dose of ten cc. of the serum causes both general and local improvement, and a fall of temperature. The compound serum—that of horses immunized both for diphtheria and the streptococcus—was also said to yield good results. The general consensus of opinion, however, regarding the use of the antistreptococcus serum in puerperal cases was against its use, the mortality being 42 per cent.

Marmorek had treated 96 cases of scarlatina with the antistreptococcus serum, using a serum of 1–30,000, and giving it in doses of 10 cc. Ten of the cases were complicated with diphtheria, and were treated with the double, or compound serum. Nineteen of the cases had enlarged glands, but in not a single case did suppuration occur. On the other hand, it should be noted that Baginsky had treated 48 cases, in several of which the enlarged glands suppurated. His mortality in these cases was 14 per cent. as against a previous mortality of 22 to 30 per cent. Dr. Jackson said that he had found that in 646 cases of scarlet fever at the Boston City Hospital, the mortality was about 9 per cent.

It was natural, he said, that in a diseases like pulmonary tuberculosis, serumtherapy should be tried; for pathologists tell us that in 20 to 25 per cent. of autopsies on cases not known to be tubercular, cicatrices or cheesy deposits are found demonstrating a healed tuberculosis. Improvement had been reported in tuberculosis from serum injections, but it was much the same story as had been told so many times before in connection with the many new methods of treating this disease.

Le Grand had reported an epidemic of 40 cases of typhus fever in a prison with 12 deaths. Recourse was then had to serumtherapy, the serum being taken from those who had just recovered from the disease. Only one of the 39 cases so treated, died. Following the use of the serum, it was noted that there was a fall of temperature, an improvement in the pulse and a diminution in the coma.

One case had been reported in which there had been rapid recovery from a cerebrospinal meningitis after the injection of serum taken from a sister of the patient, who had just recovered from the disease.

Dr. H. C. Ernst of Boston, in opening the discussion, referred to various important and comparatively little known properties of the blood-serum. He said that its globucidal power—*i.e.*, its power to destroy blood-globules—had been especially made use of by the opponents of antitoxin, claiming that this was one of the possible causes of the disastrous results which they thought were attributable to the use of the antitoxic serum. Other properties of the blood-serum needing further study were its attenuating power, its coagulating power, and its toxic power. Its antitoxic power was, so far as now known, the most important of all. Behring had been led to look into this particular feature by the vitality of the bacteria at the point of inoculation, when injected into animals immune to these bacilli, For example, if the anthrax bacilli were injected into a person immune to anthrax, the germs would continue to grow and still there would be no symptoms of anthrax. This suggested the belief that it was not the bacteria but their tonic products, which were the active cause of such diseases.

Dr. Ernst said that the exactitude and accuracy of the laboratory experiments upon which the diphtheria antitoxin treatment were founded, had been demonstrated again and again. The clinical evidence of its value had just been fully presented by Dr. McCollom. He would present the following additional statistics: He had received reports from 181 cases, outside of the Boston City Hospital, with 15 deaths, or a mortality of only 8.2 per cent. In 346 other cases, doses of 3 to 5 cc. of antitoxin were used for immunizing purposes. Of this number there was no case of albuminuria or paralysis, and no severe or permanent symptoms had developed. This would seem to show conclusively that antitoxin is not harmful. He would conclude, therefore, that in the hands of a competent person, antitoxin, when properly prepared and properly administered, was of the greatest value in the treatment of diphtheria. Much had been published, more particularly in the daily papers, regarding the position taken by Dr. Winters of New York, in regard to this treatment. The speaker said that he had very recently had the pleasure of listening to a discussion on this subject in New York, and all that he need say was that all of Dr. Winters' colleagues, who had seen the same cases as he, had avowed their belief in the antitoxin treatment. It appeared at that meeting that Dr. Winters' arguments were largely based upon a misinterpretation of facts.

Dr. T. M. Rotch of Boston, said that in a large number of cases, collected from private practice by the American Pediatric Society, an equally low death-rate to that given to-day, had been reported as following the antitoxin treatment.

Dr. W. T. Porter of Boston, in presenting a paper on

INTERNAL SECRETION OF GLANDS,

Said that a modern definition of a gland was one or more epithelial cells, opening on one side into a cavity, into which the secretion of the cells is discharged. Such a definition would include both the uni-cellular glands of the alimentary canal and respiratory tract, and the so-called ductless glands—*e.g.*, the thyroid. But this definition does not include all glands. Certain cells extrude their products directly in the lymphatics, as for example, the hepatic cells, which convey glycogen and urea directly to the lymph channels. The term "internal secretion" should be confined to the manufacture of all secretory products which enter the lymphatics and blood, including not only those passing directly from the mother gland into the surrounding liquid, but all those resorbed from the gland cavities. The reader of the paper then referred to recent observations on pancreatic diabetes. It had been found, he said, that diabetes was due to the failure of an hitherto unknown function of the pancreas—*i.e.*, the using up of part of the sugar in the blood. He said that in 1882, Reverdin had first called attention to the peculiar cachexia following the removal of the thyroid gland from the human subject, and the marked effect upon the general health, upon the speech, and even upon the intellection. In 1885, Horsley had produced myedema experimentally by removing the thyroid from the monkey. It had also been found that the total removal of the suprarenals causes death, but that this might be averted by leaving a small portion.

Regarding the internal secretion of the testis, the speaker said that the assertions of Brown-Sequard, regarding the virtues of the testicular extract, had been since confirmed by other observers. Perhaps not the least remarkable facts in connection with the subject of internal secretion of glands were those illustrated by experiments in transplanting the thyroid and the pancreas to any part of the body where a proper vascular supply could be maintained, without producing the disastrous results well known to follow the entire removal of these glands.

R. C. Cabot, M.D., of Boston, read a paper upon

CLINICAL USE OF PREPARATIONS FROM THE THYROID PITUITARY BODY, SUPRA-RENAL CAPSULE, AND BONE-MARROW.

(To appear in an early issue of Medical News.)

Dr. H. P. Bowditch of Boston, said he saw no reason why extracts of glands should not be as likely to be beneficial as an extract from a nut, or a root or a leaf. He was inclined to think that they would play an important part in the therapeutics of the future. He had tried pancreatic extracts in a number of cases of diabetes, but with absolutely negative results.

It was arranged that the Surgical Section should present a series of five-minute papers setting forth the present aspect of orthopedic surgery. Twelve papers were then read by as many different members.

(To be continued.)

REVIEWS.

Occasional Papers on Medical Subjects. By Dr. W. Hawship Dickinson, Longmans, Green & Co., London, New York, and Bombay; 1896.

This volume of 250 pages is made up in great part of opuscles that have appeared in medical journals during the past forty years, a period covering the active professional life of one who has made his name honorably known in medical literature. The diversity of topics discussed and the catholicity of the writer is shown by a glance at the table of contents, which includes among the seventeen subjects treated such widely different subjects as the "Action of Digitalis on the Uterus," the "Changes in the Nervous System which Follow the Amputation of Limbs," the "Pathology of Chorea;" "Chorea, with Reference to its Supposed Origin in Embolism," an article which has been referred to so frequently, that it has become somewhat of a classic; "Hereditary Albuminuria," "The Morbid Effects of Alcohol, as Shown in Persons Who Trade in Liquor," and finally, a pleasant reminiscent article entitled "The Practice of Medicine at St. George's Hospital Forty Years Ago." In the last-mentioned article, Dr. Dickinson is at his best, both in point of style and handling of his subject. His protracted and intimate connection with St. George's Hospital, first as clinical clerk, then as physician, and now as consulting physician, has given him opportunity to be realistic in a charming manner, by contrasting the state of medical practice in the early part of the century with the conditions existing to-day, which are portrayed in many of the articles in the volume.

Some of his remarks indicate how completely the pendulum has swung from therapy to diagnosis, such for instance as when discussing the clinical records made by the great Thomas Young, whom he eulogizes by referring to as "the most comprehensive genius and greatest man of science who ever held the office of physician to St. George's or any other hospital;" he says, "these notes are ample and minute in treatment, but without any clinical features except an occasional word of diagnosis, and here and there a brief note of *post-mortem* appearances. Pithily expressed, the treatment of disease has advanced in the last forty years, not so much in the direction of what to do as what not to do. And then what a volume of truth and honest expression of experience is summed up in the words "We trust nature more—we have learned the use of potassium iodid."

Of the many articles in the volume of permanent scientific importance, two in particular may be mentioned, "A Lecture on the Cardio-vascular Changes of Renal Disease, with Some Observations on the Large Arteries," which appeared originally in the *Lancet* of July 20, 1895, and on the "Presystolic Murmur Falsely So-called." In the latter, the author ably contends against the origin of a murmur in auricular contraction, the theory of Fauvel, which was so earnestly advocated by Gairdner in Great Britain, but which now has few believers.

Some of the papers have a historical interest, especially that on the "Action of Digitalis on the Uterus," and on the

"Pathology of Chorea," but each one of the articles sustains the liveliest interest, and is profitable, suggestive reading. It is a pleasure to recommend a medical book in which dogmatic and dictatorial statements are consigned to the background, and the plain statement of a ripe experience is put to the fore.

URIC ACID AS A FACTOR IN THE CAUSATION OF DISEASE. A CONTRIBUTION TO THE PATHOLOGY OF HIGH ARTERIAL TENSION, HEADACHE, EPILEPSY, MENTAL DEPRESSION, PAROXYSMAL HEMOGLOBINURIA AND ANEMIA, BRIGHT'S DISEASE, DIABETES, GOUT, RHEUMATISM, AND OTHER DISORDERS. By ALEXANDER HAIG, M.A., M.D., Oxon., F.R.C.P., etc. Third edition, with 54 illustrations. Philadelphia: P. Blakiston, Son & Co., 1896.

IN this volume of 600 pages, the author has practically republished and amended his former writings on the influence of uric acid as a factor in the causation of disease. To the rather formidable list of diseases mentioned on the title page, Raynaud's disease, hysteria, and asthma might be added, and the list would be quite complete. If the reader will always bear in mind that uric acid is *a* factor, and not *the* factor, such a book as this will do no harm; but we fear, with all due deference to Dr. Haig's extensive researches, that he is trying to prove too much, and that the relative worth of other etiological factors (in epilepsy and hysteria, for instance) will be underrated in consequence of his insistence on uric acid. To take epilepsy, again, a certain coterie of medical men hold that epilepsy is due chiefly to eye-strain. Haig says uric acid is the powerful provocative agent in the functional cases. Which one is it, or is it neither? A change in the amount of uric acid excreted does not prove the case, particularly since it is still doubtful whether the excess of uric acid in the blood is the cause, or the result of, an epileptic seizure.

A single paragraph from the chapter on Raynaud's disease will show Haig's general method of argumentation. To say that it is a trifle vague, is to put it mildly. This paragraph reads:

"The fact is, that in uricacidemia the vessels all over the body are obstructed, and all the most important organs and tissues give evidence that their functions are thereby disturbed; and the relation between Raynaud's disease and certain neuroses, such as hysteria, epilepsy, and the headache and mental depression of which I have spoken, amounts simply to this: that they are all effects of uricacidemia, and for this reason often occur together, and these disturbances . . . merely prove that the disturbance of circulation which produces the gangrene in the extremities produces also such changes in the intracranial circulation that certain contemporaneous changes in the functions of the great nerve-centers result."

Has it ever occurred to Dr. Haig to inquire, if his reasoning be correct, why Raynaud's disease is not a very common affection in those having epilepsy, hysteria, or migraine?

We have no intention of speaking disparagingly of Haig's researches. His facts may be well-founded, though some of them have been opposed by Herter and others, but the inferences drawn therefrom are hazardous. The author attempts to prove too much. He has done good work, however, in calling the attention of the profession to the importance of uric acid as an etiological factor in many diseases; and to those who wish to know all that can be said in favor of uric acid, this book will be welcome.

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 20, 1896.

June 12th.—Surgeon R. WHITING, detached from the "Monterey," ordered home and granted three months' leave.

Surgeon C. T. HIBBETT, detached from the "Bennington" and ordered to the "Independence."

Surgeon H. T. PERCY, detached from the Board of Examiners, Washington, D. C., July 1st, and ordered to the "Monterey."

Surgeon W. A. MCCLURG, ordered as member of Medical Examining Board, Washington, D. C.

Passed Assistant Surgeon J. W. BAKER, detached from Board of Examiners, New York, June 22d, and ordered to the "Bennington."

Passed Assistant Surgeon C. F. STOKES, ordered as recorder of Medical Examining Board, New York, June 22d.

June 13th.—Surgeon A. C. RUSSELL, detached from Board of Medical Examiners, New York, July 5th, and granted leave until August 7th, with permission to go abroad.

Assistant Surgeon M. K. JOHNSON, detached from the "Franklin" and ordered to the "New York."

Assistant Surgeon F. C. COOK, detached from the "New York" and ordered to treatment at Naval Hospital, New York.

June 15th.—Assistant Surgeons W. N. WHEELER and R. S. BAKEMAN, ordered to instruction at naval laboratory, New York.

Passed Assistant Surgeon J. W. BAKER, ordered to delay reporting until July 18th.

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 27, 1896.

June 23d.—Assistant Surgeon S. B. PALMER, detached from the New York Laboratory, June 29th.

June 26th.—Passed Assistant Surgeon GEO. ROTHGANGER, detached from the "Independence," July 15th, and ordered to the "Oregon."

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE TWENTY DAYS ENDING JUNE 20, 1896.

MCINTOSH, W. P., Passed Assistant Surgeon, to proceed from Louisville, Ky., to Cincinnati, Ohio, to inspect unserviceable property; then to rejoin station, June 13, 1896.

PERRY, J. C., Passed Assistant Surgeon, granted leave of absence for twenty days, June 20, 1896.

GARDNER, C. H., Assistant Surgeon, order of May 27, 1896, directing him to report for examination revoked June 5, 1896.

BLUE RUPERT, Assistant Surgeon, to proceed from San Francisco, Cal., to Angel Island Quarantine Station for duty, June 18, 1896.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 2, 1896, TO JUNE 22, 1896.

Captain Louis A. LaGarde, Assistant Surgeon, U. S. Army, is granted leave of absence for one month.

Captain Philip G. Wales, Assistant Surgeon, is relieved from temporary duty at Fort Monroe, Va., and will return to his proper station, Fort McPherson, Ga.

Leave of absence for one month, with permission to apply for an extension of one month, is granted Captain W. Fitzhugh Carter, Assistant Surgeon.

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ORIGINAL ARTICLES.

SUSCEPTIBILITY AND IMMUNITY, WITH SPECIAL REFERENCE TO SURGICAL CASES.[1]

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THE following remarks upon the topic of immunity and susceptibility, relating especially to surgical cases, are the outcome of a direct request by the Business Committee of the Association to prepare a paper upon this subject. It certainly is a topic which should earnestly engage the attention of all surgeons. Indeed, the subject is one of fundamental importance, since the conditions which predispose to infection or enhance resistance to it are matters of the greatest interest to every operating surgeon, and should be taken into account in weighing the advisability of all grave emergency operations.

I prefer to approach the subject first from the side of immunity, which may be spoken of (1) as local and general; (2) as congenital or acquired; and, (3) as absolute and relative, according to the light in which we consider the question.

First of all, man seems to be immune from numerous infections which are common to many of the domestic animals—for instance, hog cholera, symptomatic anthrax, and chicken cholera; while he is in common with them susceptible to the infection of anthrax, glanders, tuberculosis and actinomycosis. Secondly, men differ very much among themselves in susceptibility to the same disease. This is particularly true with regard the exanthems, smallpox, cholera, and influenza. A goodly percentage of mankind escape scarlet fever, though repeatedly exposed; and I have often seen children who have never had it exposed to measles, and yet without contagion. Of course we explain this, so far as mere words can, by saying that at the time of exposure their bodies were not receptive or were resistant; all of which is a statement of apparent fact, but no explanation whatever.

We see many similar differences among animals, or at least we have many analogous instances. Birds suffer in nowise from belladonna nor opium, nor do goats from nicotin. The hedgehog is perfectly immune to the bite of poisonous snakes. The freedom from bad results seen in the practice of veterinary surgeons is due to the relative immunity from infection of the animals upon which they operate, and one of the hardest lessons to teach young workers in the surgical laboratory is that they must not disregard the rules of antisepsis in human surgery as they do when experimenting and operating upon dogs.

Susceptibility seems, in fact, to be inseparable from a study of the causes which favor infection, which I would take up in the order following:

1. *The Virulence of the Infecting Organisms and the Amount Introduced.*—As between the various bacteria, there is the widest difference in the matter of virulence, and it is certainly true that even in the same species there are great differences under varying circumstances,—these depending upon conditions as yet incapable of exact statement. With some organisms it is enough to infect an animal with only one in order to bring about a fatal result. In the guinea-pig, for instance, a single virulent anthrax bacillus will produce death; whereas in more resistant animals many are required, and in those which are immune, no amount seems to disturb the life of the creature. Man is much more susceptible to pyogenic organisms than most of the lower animals. When several species are introduced at once, some of them develop and do harm, the others die; but the same results cannot be gotten with animals of different species. Mice are very susceptible to anthrax; rats, almost immune. Rabbits and mice are extremely susceptible to rabbit septicemia; guinea-pigs and rats, immune; also sparrows and pigeons. Spirilla of relapsing fever have only been successfully inoculated into apes. Leprosy, syphilis, and gonorrhea have never been transmitted to any of the lower animals.

The virulence of micro-organisms is itself affected by temperature, sunlight, moisture, dryness, as well as by association with other bacteria. Those which have been repeatedly passed through the animal body become more virulent than those cultivated for generations in laboratory test-tubes. Variable virulence is especially characteristic of

[1] Read before the American Surgical Association, at Detroit, Mich., May 27, 1896.

the cocci of erysipelas, the colon bacillus and the anthrax bacillus. The common bacillus prodigiosus is ordinarily held to be non-pathogenic, but its presence has a strange, often reinforcing, effect upon the virulence of certain other organisms, in some cases enhancing it, in others suppressing it. The natural immunity to anthrax of rabbits and pigeons can be overcome by injecting the prodigiosus at the same time. Roger has maintained that the prodigiosus produces a decomposition product which is soluble in glycerin and which produces a modifying action upon the animal organism. Moreover, by previously injecting substances which dissolve blood-corpuscles or affect their integrity,—for example, pyrogallol and hydracetin,—Gottstein has made guinea-pigs, which are ordinarily immune to chicken cholera, susceptible to the disease. So, too, white mice can be made susceptible to glanders, from which they are ordinarily exempt, by producing an artificial diabetes by adding a little phlorizin to their food. Anthrax has been communicated to immune animals by subjecting them to the influence of curare, chloral, and alcohol. This is particularly true of dogs, frogs, and pigeons.

Perhaps no better illustration of the combined effects of exciting and contributing causes can be found than the occurrence of pneumonia. The micrococcus lanceolatus is present in the salivary secretions of many individuals. Nevertheless, it acts as the infectious agent in producing croupous pneumonia only under peculiar circumstances, the most notable of which appears to be exposure to cold, bad hygienic surroundings being a secondary and contributing cause.

2. *Association.*—This, which has been already alluded to, deserves further consideration under a separate head. Under natural conditions, bacteria are seldom found in pure cultures, while by mutual association remarkable changes are produced, whose results are so strange and yet so contradictory, that no law governing them has as yet been formulated, it being necessary to establish each case by experimental investigation. One of the most remarkable illustrations is that of a combination of anthrax bacilli and erysipelas streptococci, each of which by itself is virulent; yet, when introduced together, they appear well-nigh harmless; the diplococcus of pneumonia, on the other hand, when combined with the same anthrax bacillus seems to have a greatly augmented power.

Very small doses of pure cultures of bacillus pyocyanus are fatal to rabbits if, at the same time, a considerable quantity of a filtered culture of the same bacillus is thrown into their veins. The animal can resist either alone, but the combination of the two is too much for it. The same is true of symptomatic anthrax. It is also true of old and attenuated cultures of the common pyogenic organisms, if at the same time a living culture of proteus vulgaris be introduced. This may shed not a little light upon the epidemics of typhoid fever among those who have a common water supply.

Some rather startling facts have been discovered incidentally to the study of immunity and infection. Thus, Roux found that the blood-serum of a horse which he immunized against tetanus neutralized the poison of the cobra, though the converse was not true; also that the blood-serum of a rabbit made immune against hydrophobia, will protect a susceptible animal against a dose of cobra poison five times as large as that ordinarily required to kill.

3. *Hereditary Influences.*—That immunity is transmitted from parent to offspring no one will dispute. Explanation of this fact is almost as remote as ever, but its recognition is of the greatest importance to practising surgeons. Liability to infection seems, to some extent at least, a feature of hereditary habit of tissues.

4. *Local Predisposition.* This is a also a factor of great importance. Once given a distinct infection, and hyperemia is often a contributing cause, due to inflammation. On the other hand, anemia of tissues seems sometimes to be a favoring condition. When dogs are freely bled, the pneumo-bacillus of Friedländer will affect them as ordinarily it will not do at all. In parts involved in chronic congestion, the blood flows more slowly, while vessels are dilated and susceptibility is apparently thereby increased. Infection here produces a type of disease often spoken of as hypostatic inflammation. General anemia is also a predisposing cause; while such toxemias as diabetes, etc., are still more so, the liability of diabetic patients to suppuration and gangrene being proverbial.

The presence of foreign bodies has also much to do with infection, since when bacteria and foreign bodies are introduced together, the presence of the latter will practically always excite suppuration, which would, without it, not occur. The withdrawal of trophic nerve influences also permits of infection, as is instanced by the ease with which bedsores form in paralytic patients. Obstruction to circulation or to escape of secretion, also easily permits infection, for example—in the appendix, the kidney, the gall-bladder, the sali-

vary ducts, etc. Furthermore, one may formulate a quite comprehensive statement, and say that all such lesions as solutions of continuity, hemorrhages, degenerations, vascular stasis, perforations, etc., increase more or less the liability to infection. The ease, for instance, with which the colon bacillus pierces the coats of an intestine which has been in the slightest degree disturbed or abraded is wonderful. They collect, for example, in the sac of a strangulated hernia, and even other organisms are often found. Hence the rule for careful disinfection of the sac and the exposed gut before returning the latter to the abdomen. In time past, it has been held that the presence of blood-clot within a wound was most undesirable, it being thought that it offered a favorable nidus for the development of bacteria. It has been more recently shown that virulent organisms injected into the blood-clots occasion no suppuration. Blood-clot, therefore, has of late been utilized in the healing of a certain class of wounds, and we now know that retained clot which produces no undue tension is not a common source of danger.

5. *Vestiges and disappearing organs and tissues.*—It is being more and more clearly established that those organs which are, in the course of ages, undergoing retrogade metamorphosis, or are disappearing, are especially liable to infection and inflammatory destruction. This is particularly true of the appendix, and is true as well of those collars of lymphoid tissue which surround almost all of the original outlets or inlets of the archetype embryo. We see it well illustrated, for instance, in the lymphoid tissue about the pharynx, the pharyngeal, faucial, and lingual tonsils. If it should prove true, though I hold it not yet to be completely demonstrated, that cancer is a parasitic condition, we shall have here a beautiful illustration of this fact, in that it is notorious that cancerous changes occur most often in localities just alluded to, as, for instance, the pylorus, the cecum, etc.[1] At all events, it seems to be largely true that lymphoid tissue is retrogressive in its tendency, and all such tissue is peculiarly susceptible to infection.

6. *Preëxisting Disease.*—Here must be reckoned, first, previous and long-existing toxemias, *e.g.*, scurvy, diabetis, syphilis, etc.; second, diathetic conditions, like lithemia, cholemia, acetonuria, and the various conditions represented by oxaluria, or those in which acetone, peptone, or excess of uric acid are found in the urine. It has been recently shown by the experiments of Pansini that the addition of uric acid as well as of glucose to blood-serum markedly diminishes its bactericidal activity. On the other hand, the injection of an alkali into the blood of a rabbit increases its resistance to anthrax, and enhances the bactericidal power of its blood-serum. Third, the immediate or recent results of other acute diseases, as, for instance, tuberculosis following quickly upon measles. Recent toxemias have, in fact, an important bearing for us, inasmuch as after typhoid or other acute wasting disease, including the exanthemata, surgical operations are sometimes followed by a failure of tissues to heal, and should consequently be postponed until after complete recovery, save in cases of emergency. The puerperal state is also one in which operations are to be avoided, if possible. But, above all the ordinary expressions of recent toxemia is to be placed that somewhat vague or varying condition which I like to call enterosepsis, or intestinal toxemia, which has been spoken of in time past as fecal anemia, stercoremia, copremia, etc., as one whose existence makes positively dangerous the performance of operations of any kind, since it certainly predisposes to septic disturbance. It is a condition of chronic intoxication in more or less mild degree, in which state no wise surgeon likes to operate unless compelled. I would wish, also, to place much more stress upon a still somewhat vague condition, ordinarily spoken of as lithemia, characterized by hyperacidity of, and often by crystals of oxalates in the urine, as one which should always be corrected, if time be given, before any serious operation. Of itself it is serious, since it often leads to the auto-intoxication just spoken of, from the intestinal canal; and the two together constitute a condition which is quite likely to baffle the surgeon's best efforts.

There are also to be taken into consideration the anatomical changes peculiar to the various ages; for example, the arterial scleroses of old age, with their accompanying cardiac debility and other tissue alterations, which favor sluggishness of repair, and lead not infrequently to

[1] If we are to regard cancer as an infection, cancer mortality is lowest where the struggle for existence is hardest and the density of population greatest, and the tubercular mortality the highest; while among the wealthy, where the standard of health is better and life is taken easier, and among the fast, cancer mortality is highest. According to Williams, there are no more potent factors in the causation of cancer than high feeding and fast living. Cancer is twice as frequent among the whites as among the blacks, it being notorious that negresses rarely suffer from uterine or mammary cancer. On the other hand, they are very prone to uterine fibroids. Cancerous diseases are almost or quite unknown among the negroes, even in their native country. Williams states that this immunity applies alike to meat-eating and vegetarian savages. On the other hand, cancerous diseases are very prevalent in all highly civilized communities. The proportion of cancer among dark-complexioned whites is lower than in the light-complexioned—in the proportion, according to some statistics of 69 to 31.

sloughing or to bedsores. Amyloid changes also betoken impaired vitality. Nursing infants, while apparently exempt from many of the infectious diseases, possess relatively small power of resistance to surgical operations. General anemia and impaired body nutrition predispose to most infections, and acute starvation notoriously so.

7. *Personal habits and environment.*—Diet has much to do with tissue resistance. Rats fed on bread are more susceptible to anthrax than those fed on meat. Hunger makes pigeons highly susceptible to the same disease, and artificial immunity induced in various animals is quickly destroyed by starvation. Prolonged thirst seems to have the same result. Fatigue notoriously reduces immunity, either in animals or men. This is abundantly shown upon the former in various laboratory experiments, and in the latter instance by the accumulated experience of centuries. Drugs or foods which impair the vitality of the red corpuscles reduce immunity; and even by the injection of water into the circulation, the germicidal power of the blood may be reduced. If this be so, one may better appreciate the effect of the various toxemias alluded to above, which proceed from the intestine or from the genito-urinary tract. Climate has not a little to do, as have also extremes of weather, in influencing resistance to infection, or recovery after serious operations. Pasteur has shown that fowls, which are naturally immune to anthrax, become infected when subjected to artificial refrigeration after inoculations. Dark habitations, poorly ventilated, constitute surroundings which notoriously predispose. Rabbits inoculated with tuberculosis and confined within a dark, badly ventilated cell, die, while others similarly inoculated and allowed to roam at large, present but slight evidences of the trouble. Certain occupations predispose. This is preëminently the case, for example, with workers in mother-in-pearl, who are exceedingly liable to a peculiar form of osteomyelitis; while the peculiar effects of phosphorus and mercury in producing necrosis are classical. It is important also to remember that the prolonged necrosis of these drug intoxications may produce such changes in the blood and tissues that vital processes of repair, cell resistance and chemiotaxis may be so far interfered with as to facilitate subsequent infection. This, too, may be at least the possible effect of certain antiseptic agents, which, used in too great strength, interfere with normal reactions and lead to decomposition, either of drugs or of vital fluids, by whose products harm may be done.

Finally, the influence of local injury to tissues, particularly of contusions, which cause tissues to lose their vitality, is a thing to be strenuously insisted upon as predisposing to infection. Both in clinical experience as in experimental investigation, it is every day shown that tissues which ordinarily resist infection succumb to inoculation after bruising or the ligature *en masse.*

8. *Fetal infection.*—In only a very limited class of cases may infection be transmitted from mother to fetus. But when this can occur the surgeon is often deeply concerned. While syphilis is the only infection capable of direct transmission through the ovum or spermatozoön, intrauterine infection may yet occur, since the placenta is not a perfect filter, but is occasionally passable by microörganisms. It may be made pervious, either by pre-existing lesions or by virulence and activity of the bacteria. In animals, for instance, the bacilli of chicken cholera and of symptomatic anthrax, as well as even the pyogenic cocci, can traverse this barrier. In mankind, infection has been observed *in utero* in smallpox, measles, scarlatina, relapsing fever, syphilis, tuberculosis, croupous pneumonia, typhoid fever, anthrax, and common septic infection.

Conditions which afford protection or immunity.—Immunity may also be (*a*) local or constitutional; (*b*) congenital or acquired; and (*c*) may concern some particular infection, or amount to a general protection. Immunity for a particular infectious disease is often conferred by one attack. This is, for the most part, true of the exanthemata, yellow fever, etc. It is not true, however, of tuberculosis, nor the so-called surgical infections; neither is it true of septic infection, *e.g.*, septicemia, etc. It is true in only very modified degree of diphtheria.

Immunity is in some sense a racial characteristic, as, for example, in the case of the Japanese, who, it is said, never have scarlet fever; and of the negroes, who escape yellow fever. The essential characteristic, however, which makes the negro immune against yellow fever does not protect him against tetanus, to which he is unusually susceptible. Negroes are less liable to malaria and dysentery than are Europeans. Japanese are more susceptible to beriberi than are Europeans.

Acquired immunity may be *natural* or *artificial;* natural in the instances above-mentioned, artificial when produced by inoculation with attenuated bacteria, or by the injection of certain chemical substances, or by change of environment, or by modification of food or by drugs. The most effective, the most prompt, and the most measurable

effects, are produced either by inoculation with bacteria of attenuated virulence, by injection of sterilized cultures, by employment of blood-serum, or of some antitoxin separated and concentrated from it, taken from animals rendered immune by one of these methods. It should be emphasized that serum, or its preparations, used for this purpose, deserves more than the term "protective" often applied to it. It is often, in effect, a *healing* serum, since it does more than protect against the disease—it usually helps to cure it while in its active stage. The question of how serum produces immunity, of absorbing interest as it is, is not one to be discussed in this place; neither is the question concerning the origin of the immunizing substance, be it what it may. Acquired immunity is not necessarily a matter of juggling with bacteria of the disease in question, but may be produced by the employment of others. Of interest, also, is it to state that individuals or animals possessing a natural immunity against a given disease, have in their blood-serum no immunizing substance as against that disease. This substance is only to be produced by an artificial immunization.

In a general way, it may be said that the conditions which afford protection, so far as they are controllable by the surgeon, are those which tend to increase what, for lack of better knowledge, we must call vital resistance, and to decrease vulnerability. The ideal condition is that which is summed up in the generally received expression of "perfect health," in which the various secretions and fluids, possessing their normal acidity or alkalinity, are sufficient to destroy or render inert harmful organisms entering their precincts. Where there is perfect equilibrium between ingestion and excretion, which shall permit no extravascular excitement, no congestion, no exudate which may become infected—in other words, where the natural functions are performed in an ideal manner—under these circumstances almost any accident may be survived and repaired without perceptible struggle, the tissues and fluids in their healthy state being abundantly able to dispose of such bacteria as may accidentally enter. Traumatic exudates are now absorbed, and speedily; the hyperemia of irritation is quickly compensated for; while here we find those general conditions which surgeons everywhere rejoice to see, and under which they feel warranted in making any necessary interference. Here, too, should infection by accident occur, as by the introduction of a foreign body, phagocytosis is so prompt and filtration through lymph nodes so thorough, that the worst which may happen is local suppuration. This general condition is met with in its most complete expressions where no hereditary influences have conspired to dwarf organs or impair their activity; where no poison, like that of syphilis, or uric acid, or alcohol, interferes with perfect nutrition and normal cell activity; where exposure has not lowered tissue vitality; where starvation and fatigue have not conspired to temporarily reduce it; and where mental worry has not lent its aid in contributing to impair normal processes. These, then, are the conditions which afford protection and under which the surgeon loves to work.

The conclusions of surgical importance which may be legitimately reached from the study of the conditions dealt with in this paper, are essentially these: That the surgeon in emergency cases has to do the best he can, not merely with the means at hand, but with the tissues at hand; and here, so long as he can control what may happen outside of the body, he has done his full moral and legal duty. On the other hand, in any case where patients deliberately come under observation, and where time may be afforded, it is the surgeon's bounden duty,—bearing in mind a summary of the conditions which notoriously conspire, upon the one hand, to lower vulnerability, upon the other hand, to afford protection,—to so order the habits, the diet, the surroundings and the preparation of his patient, as to restore his tissues and vital fluids, so far as possible, to their normal condition, before he interferes with their functions by an operation.

A distinct and as yet an unworked field lies before him who will study carefully and for sufficient length of time the effect of anesthetics in increasing susceptibility and infection. This is a problem which must be worked out rather upon human patients than upon animals, since the conditions are so exceedingly different, most of the animals used for experiment being too relatively insusceptible, dogs notoriously so. I have for years cherished the opinion that anesthetics affect all people to a greater or less degree in this direction; yet am not able to present to you any definite statistics or statements, Loss of blood is certainly a factor lowering vitality; and in that complex condition of shock, it must assuredly be that natural immunity is at least temporarily lowered. Equally important in my estimation are the auto-intoxications and toxemias, of which two particularly call for mention here. The effect of sugar in the urine, or, rather, the effect of the condition which leads to its presence, is everywhere recognized; but I am more and more

convinced that in the body condition which is most easily recognized by hyperacidity of urine, and which is so often a complication of uricacidemia, oxaluria, etc., we have a grave and sometimes insuperable obstacle to ideal success after operating. The other condition to which I particularly allude, is that which I usually speak of as intestinal toxemia, and relates to auto-intoxication produced by absorption from the contents of the alimentary canal of substances which ought not to be therein retained, nor allowed to so accumulate nor undergo chemical changes which shall permit such absorption. This condition is, in large measure, represented by chronic constipation; and yet it certainly does occur in patients who have a regular daily habit of alvine evacuation. It is to be recognized by the hue of the skin, by the appearance of the tongue, often by the presence of indol or indican and ethereal sulphates in the urine, and quite often by the diminished elimination of the fluid and mineral elements of this fluid. It should be combated, if possible, by a careful course of hot-air or Turkish baths, copious draughts of fluid, the administration of saline laxatives and of intestinal antiseptics, among which in my estimation the very best is a solution of mercury and arsenic in hydrocholoric acid, given in the shape of mercuric chlorid, dissolved in dilute muriatic or nitromuriatic acid, with the addition of liquor arsenici chloridi. I have tried a great variety of the vaunted intestinal antiseptics, but have settled upon the conviction that some such mixture as this gives results far superior to any which can be obtained from salol, naphthalin, etc. If, in conjunction with these measures, we resort to exercise, when it can be taken, to sunlight, which is always available, and perhaps to massage, by which circulation is quickened and equalized, excretion hastened, and waste material dislodged and taken out of the system, we have done what we can to prevent infection.

I have, furthermore, for years, contended that since the inauguration of the so-called antiseptic era, in our enthusiasm for combating infection from without, we have lost sight of, and, to a great extent, neglected a most important truth, which we cannot afford to disregard, namely, the importance of recognition and the successful prevention of infection from within. Certain it is that in the majority of instances the latter (*i.e.*, infection from within) is much the more liable to ensue, and particularly in a class of cases where one is tempted, for one reason or another, to be less careful than he ought to be. I would give, then, this most important practical conclusion to my remarks, that only he who weighs judiciously the possibility or the imminent probability of one or the other of these forms of infection is really capable of guarding against both of them, and that the best surgeon is he who will always take time, when it can be afforded, for the preparation of his patient for operation. In other words, I would remind you of Sir James Paget's too often neglected statement, that we ought to examine patients for operation with fully as much care as we do for life insurance; and add to it, that if this examination be so conducted we shall often find that which will make us hesitate and prepare them, before subjecting them to the enhanced risk of what may, in other respects, seem for their good.

INTUBATION OF THE LARYNX IN DIPHTHERIA, WITH REPORT OF TWENTY-FIVE CASES.

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This subject has been so exhaustively written upon during the past few years that it is with some little hesitancy I report the following cases, directing attention to a few points worthy of special mention. The following is a resume of a number of cases of intubation performed by me during the past year. Success in intubation depends upon the following conditions: (1) the time at which the operation is performed; (2) the degree of toxemia existing; (3) the treatment following the introduction of the tube.

In consideration of the first condition regarding the time of the operation, it may be said that each case is a law unto itself, but a few general principles that have guided me in my cases are as follows: If there be any membrane in the fauces, or if a history of diphtheritic infection and dyspnea, due to laryngeal stenosis, appears, the sooner the tube is introduced the better for the patient, because of the great difficulty of perfectly oxygenated blood in coping with the overpowering influences wielded by the toxins of the Klebs-Loeffler (diphtheria) bacillus. There is a still greater difficulty when imperfectly oxygenated blood has to accomplish the same result, not to mention the demoralizing effect caused by the muscular fatigue of forced respiration; and lastly, the untoward results produced by a plus quantity of CO_2 in the blood.

The degree of toxemia existing prior to or at the time tubage is performed varies greatly with each case. It does not necessarily depend upon

No.	Sex.	Age.	Duration before intubation of larynx. Laryngeal Symptoms	Duration before intubation of larynx. Pharyngeal Symptoms.	Time Tube Worn.	Complications.	Result
1	M	13 mo.	12 hrs.	24 hrs.	Tube introduced and allowed to remain 6½ days—withdrawn and after a period of 3 hours reintroduced and left in six days; withdrawn and after 5 hours was again introduced, remaining 4½ days.	Paralysis of the muscles of respiration.	Recovery
2	F	2 yrs. 8 mo.	6 hrs.	12 hrs.	5 days.	Nephritis.	Recovery
3	M	4 yrs.	10 hrs.	36 hrs.	6 days.	.....	Recovery
4	F	7 yrs.	4 days.	5 days.	12½ hours.	Paralysis of heart.	Death
5	F	3 yrs. 5 mo.	4 hrs.	2 days.	Tube in 5 days, after 8 hours reinserted for 6 days.	Nephritis.	Recovery
6	M	2 yrs.	8 hrs.	3 days.	Tube in 5 days, after 10 hours reintroduced for 6 days.	.....	Recovery
7	M	3 yrs. 8 mo.	4 hrs.	2 days.	Tube in 5 days, after 4 hours reintroduced for 4 days.	.....	Recovery
8	F	4 yrs.	12 hrs.	1 day.	Tube in 4 days.	Nephritis.	Recovery
9	M	7 yrs.	2 days.	3 days.	Tube in 3½ days.	.....	Recovery
10	M	2 yrs. 3 mo.	24 hrs.	4 days.	Tube in 6 days.	In this case there was no membrane visible in fauces, but as stenosis was marked, although the diagnosis of diphtheria was questionable, a tube was introduced. At the end of 6 days tube extracted, and followed by *paralysis of lower extremities.*	Recovery
11	M	16 mo.	12 hrs.	2 days.	Tube in 5 days, after 3 hours reinserted for 4½ days.	Severe diarrhea.	Recovery
12	M	6 yrs.	2 days.	2 days.	Tube in 24 hours.	Pneumonia at time of tubage.	Death
13	M	5 yrs.	12 hrs.	3 days.	Tube in 4 days.	Nephritis.	Recovery
14	F	4 yrs.	10 hrs.	2 days.	Tube in 6 days.	.....	Recovery
15	M	2 yrs. 11 mo.	12 hrs.	24 hrs.	Tube in 24 hours, coughed out and larger size introduced for 5 days.	.....	Recovery
16	F	1 yr. 7 mo.	8 hrs.	2 days.	Tube in 3 days, after 18 hours reintroduced for 4 days.	.....	Recovery
17	F	3 yrs. 4 mo.	22 hrs.	3 days.	Tube in 5 days, after 1½ hours reintroduced for 6 days.	.....	Recovery
18	F	2 yrs. 1 mo.	4 days.	5 days.	Tube in 18 hours.	Paralysis of heart. Refused nourishment and tube extracted.	Death
19	M	11 yrs.	1 day.	3 days.	Tube in 2½ days.	Paralysis of constriction of pharynx.	Recovery
20	F	4 yrs. 7 mo.	12 hrs.	2½ days.	Tube in 6 days.	Nephritis.	Recovery
21	F	6 yrs.	6 hrs.	24 hrs.	Tube in 5½ days.	Paralysis of constriction of pharynx.	Recovery
22	M	4 yrs.	24 hrs.	3 days.	Tube in 5 days, after 6 hours reintroduced for 5 days.	.....	Recovery
23	M	8 yrs.	2 days.	2 days.	Tube in 6 days.	.....	Recovery
24	F	3 yrs. 6 mo.	12 hrs.	4 days.	Tube in 5 days, after 12 hours reintroduced for 4 days.	Severe hemorrhage from nose.	Recovery
25	F	2 yrs. 7 mo.	12 hrs.	12 hrs.	Tube in 6½ days.	Nephritis.	Recovery

the amount of membrane visible at the point of infection—generally some part of the upper respiratory tract. The mildest cases, clinically, not to be diagnosed diphtheria, are sometimes followed by grave, if not fatal complications, as in one of the cases about to be reported where the respiratory functions were, for a time, practically abolished, only again to be restored by heroic therapeutic measures; and still another where there was no membrane at any time visible, yet followed by complete paralysis of the lower extremities. This is not an uncommon occurrence. Jacobi[1] states: "Thus there is no case of diphtheria—beyond, *perhaps*, those of the mild tonsillar form—but ought to make us anxious and afraid. Indeed, there is no safety and no positive prognosis until the patient is quite recovered, and even advanced beyond the period in which paralysis may develop."

The keynote of the situation lies practically in the treatment following the introduction of the tube. At this point a brief description of the technic and instruments required for the operation will not be amiss.

The instruments now almost universally used are those of O'Dwyer, the workings of which need not be here described. All that may be said is that it is better to use the old extractor rather than the later invention, which, to lessen the difficulty of extraction, causes a metal hook to be held on the tip of the index finger by a string attached to a ball held in the palm of the hand, but unfortunately necessitates a bridge of wire across the face of the tube. This method, though greatly lessening the difficulty of extraction, increases the likelihood of aspiration pneumonia by preventing the epiglottis from coming in as close contact with the face of the tube as it might if this were not the case.

In performing the operation of intubation the child is placed upon the lap of the nurse or assistant, wrapped in a blanket, and the arms secured by the nurse holding the elbows so as not to interfere with the respiratory movements.

The patient's head is secured by the assistant, and the position[2] "of the head and body should be as if he were hung from the top of the head," and this position should not be deviated from during the insertion of the tube.[3] The mouth-gag is then placed in position, and the operator standing directly in front of his patient, passes the left index finger down the side of the mouth over the posterior portion of the tongue, hugging closely the right lateral wall of the pharynx until he feels the glosso-epiglottic fold. The finger is then swept toward the median line. By this motion the epiglottis is thrown forward. The same finger is then slid slightly backward until the tip comes in contact with the rima-glottidis, the palmar surface of which holds the epiglottis firmly forward. The introducing instrument, holding the tube, is now passed down in the median line, swept over the posterior portion of the tongue, until the tip of the tube comes in contact with the finger. The handle of the instrument is then raised so as to prevent the tube being carried into the esophageal opening. The tube is then pushed into the larynx, the trigger is pressed forward, and the obturator released. Pressure should then be made upon the tube with the finger so as to sink it well into the larynx. As soon as the obturator is removed there is usually a violent respiratory effort, which is accompanied by a gush of mucus or membrane from the tube, after which the breathing is usually satisfactorily established. If by mistake the tube has been pushed into the esophagus it should then be immediately withdrawn by the silken loop attached to it, and another attempt made to introduce it into the larynx. The feeding, after the introduction of the tube, should be of liquid consistency, and the patient fed in the most comfortable position possible, which is the one that he will most naturally assume. The reason for this is that no matter what position the patient be placed in, the act of swallowing remains the same, and if placed in an abnormal one, namely in the frequently insisted upon reclining posture, the food, instead of being faciliated in its passage from the mouth into the stomach, is delayed.

The reason liquids are the best is two-fold: First, they are more readily swallowed, and if perchance should accidentally gain entrance through an imperfectly closed glottis, will be more likely to be expelled than a solid particle. The second reason is a physiological one. To quote Foster:[1] "When the substance swallowed is liquid, the movement of the back part of the tongue may be sufficient, not merely to introduce the food into the grasp of the constriction of the pharynx, but to propel it rapidly—to shoot it in fact—along the lax esophagus before the muscles of that organ have time to contract."

In regard to the medicinal treatment accompanying tubage—stimulants, both alcoholic and

[1] "Therapeutics of Infancy and Childhood," 1896, p. 189.
[2] Waxham, *Medical Record*, 1887.
[3] This method will materially aid in locating the epiglottis, especially where the patient is young or the edema great.

[1] "Text-book of Physiology" (Revised Edition), Foster, 1895, page 376.

drugs, such as strychnin and digitalis, should be given in sufficient doses from the beginning. If this be done fewer cases of cardiac insufficiency will occur. Mercuric chlorid is the indispensable drug and should be used in every case. Frequent spraying with a two per cent. solution of papayotin, or a $\frac{1}{3000}$ solution of mercuric chlorid, is indicated. This measure not only cleanses the fauces but also relieves the dryness greatly complained of by the patient.

Tincture of ferri-chlorid, although its action upon the blood is not definitely known, is to be given in sufficiently large doses.

The time at which the tube is to be withdrawn depends upon the age of patient, and the severity of the attack. If the patient is young it is better to allow the tube to remain in five or six days. It should then be removed, and if necessity requires, reintroduced. If the patient is older, and the temperature tends to reach the normal, and the symptoms of the disease are rapidly disappearing, the tube may be taken out as early as the second or third day.

In the extraction of the tube the original instruments devised for the purpose should be used. The silken thread should always be removed after the introduction, since it may interfere with the perfect closure of the glottis; or if the case be a virulent one, and ulceration caused by the irritation at the angle of the mouth occur, it will most likely be infected by the disease; and lastly, it may be pulled out during the patient's struggles.

GOOD RESULTS FOLLOWING URETHRAL RESECTION.[1]

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WITHIN the last year I have encountered two instances in which, owing to the extensive destruction of the urethral canal, I had originally expected to be finally obliged to establish an artificial route, either perineal or hypogastric, in order to insure a satisfactory and permanent outlet for the vesical contents. In both of these cases, however, by resorting to a very radical and extensive excision of the diseased urethral areas, including also the surrounding cicatrices, I have been able to restore the normal urinary function and to apparently leave the urethral canals of permanently good caliber. In one of these cases the excised tissue included the entire bulbous urethra, fully an inch of the penile urethra anterior to the bulb, and the anterior half inch of the membranous urethra. In the other case, an inch and three-quarters of the urethra was removed. In this second case the tissue removed included the bulbous urethra and the anterior portion of the membranous urethra. The first case was operated on about one year ago, and has been under observation ever since. Although the urethra is somewhat tortuous, it admits freely an 18 American, and shows no special tendency to contract. The second case, done about ten months ago, admitted a 17 American easily four months after the operation. Since that time I have not had an opportunity personally to examine the patient, although I have heard from him that he was all right and in no apparent need of surgical attention.

Before proceeding to give a history of these two cases, a brief review of this surgical procedure will be of interest. In 1882 König was apparently the first one to advocate resection of the urethra. He reported a favorable result from resecting a traumatic stricture of the membranous urethra. The free edges of the urethra were dissected up and brought into apposition by sutures. König supposed, and Heusner also, who, it appears, independently of him reported a similar case a few years afterward, that the success of the operation lay in the healing together by primary union of the cut edges of the urethra. Consequently the operation of resection was supposed to be applicable only to such cases of stricture of the membranous urethra as involved a short portion of its length and as would consequently admit of the cut edges being brought together by suture. Acting on this idea, Wölfler, a few years afterward, resected for traumatic stricture of the membranous urethra a greater section of the canal than would allow of adjustment in apposition by suture of the cut edges of the urethra. To fill up the gap, this author grafted in the necessary amount of mucous membrane taken from a guinea-pig and sutured this foreign membrane to the cut edges of the urethra. He reported a good result. Keyes, inspired by Wölfler's example, grafted a piece of mucous membrane taken from the foreskin of the individual into the space in the membranous urethra occupied by the strictured area. He did not, however, suture this bit of graft to the posterior urethral end. A good result followed this operation. Since then Sapiejko reports that in numerous similar cases he has obtained good results by filling in the space occupied by the stricture with the mucous membrane taken from guinea-pigs, fowls, dogs, and monkeys. In the light of

[1] Read at the meeting of the American Association of Genito-Urinary Surgeons, June, 1896.

subsequent events, however, it seems to me that the good results reported from these cases of urethral resection combined with grafts of various kinds of mucous membrane should be attributed entirely to the resection of the urethra and not at all, as these authors contend, to the grafts. Indeed, one is at liberty to doubt the taking of the grafts in any of these cases, since the only proof of any real weight presented in substantiation of such an hypothesis lies in the fact that the final results in these operations were satisfactory. The same, however, can now be said of simple resection without any attempt at grafting and without bringing the cut urethral edges into apposition by suture. Among other arguments to be advanced against the probable taking of these grafts are the absence of the general conditions favorable to the success of such a procedure, and also the inability to satisfactorily inspect the part involved after the operation. The chief conditions unfavorable to success are as follows: The resected membranous urethra lies in the bottom of a deep, V-shaped space. From the nature of the tissues constituting the angle of this space, it is impossible to so adjust them to those of the under surface of the graft that they should lie in undisturbed apposition. As a result of bleeding or serous oozing and of the contraction of the elastic walls of the V-shaped space, the graft is puckered up and pushed out from the apex of the angle, leaving a triangular space filled with serum or clot between the tissues, which should have been kept in close connection. It may be claimed that a catheter tied in prevents this separation, and possibly it may, although to me it seems very improbable that such should be the case. An ocular inspection of a graft through an endoscope is only feasible after thorough healing has taken place, and at such time the appearance presented by natural cicatrization over a respected area would probably offer no special signs by which it could be distinguished from the appearance which might be due to the taking of a graft. In 1892 Horteloup, Guyon, Albarran, Jouon, Vignard, Wartel, and other French surgeons all announced themselves in favor of resecting areas of the membranous urethra too extensive to admit of the approximation of the cut edges and of leaving the space between these edges to granulate. Horteloup, in his report, announced a case of cure in which, four years before, he had removed four centimeters of the membranous urethra. At that time most of these authors held that resection was applicable only to traumatic strictures of the deep urethra. Guyon and Albarran, however, held that contractile and rebellious strictures of gonorrheal origin could be treated in this manner. In one of the cases reported by Wartel a penile stricture, three centimeters in length, was excised. This is the first report that I find of excision of a penile stricture. Within the last year or so, however, numerous cases have been reported in which considerable portions of the penile urethra have been resected with good results. As a striking example among these cases of resection of the penile urethra in which an especially good result was obtained, may be mentioned the case recently reported by Chismore, of San Francisco. The usual procedure advocated by these French authors after excising the stricture and the surrounding inodular tissue is to introduce a "*Sonde à demeure*," and then to unite the perineal or penile tissues by several tiers of sutures. If the perineal structures heal by first intention, a better result is naturally expected than where suppuration is encountered.

As an after-treatment, I have adopted in my cases a method which has the advantages of the *Sonde à demeure*, without its disadvantages. The advantages of the *Sonde à demeure* in resection involving an extensive area of the deep urethra are that it acts as a splint, as it were, in steadying the cut urethral ends and in affording a firm cylindrical body about which the perineal tissues may be brought and molded so that in healing they may be made to conform as nearly as may be to the shape of the new urethra. The disadvantages of this instrument are that it cannot be removed if its presence in the bladder causes tenesmus. If vesical tenesmus be violently excited, then urinary infiltration into and suppuration of the perineal tissues may result. If the *Sonde à demeure* is once removed to rest the bladder, it cannot be replaced, and in such an event the only thing to do in case firm union of tissues has not taken place is to open anew the perineal wound.

The method I use is as follows: After the resection has been accomplished I make a very low cut, dividing the deepest portion of the membranous urethra, the lowest portion of the perineal structures, and some of the circular fibers of the sphincter ani. Along this low level route I place a soft rubber vesical drainage-tube of large caliber. I then introduce along the urethra a soft catheter of such a caliber that it can be retained with comfort. This catheter extends from the meatus along the penile, the resected, and the deep urethra, down to the big perineal tube, and about it the perineal structures are carefully sutured. This

urethral tube is kept in for a week or ten days, as the case may be. The big perineal tube can be withdrawn and replaced, if needs be, without in the least disturbing the urethral tube.

CASE I.—Forty-five years old. In early life had had numerous attacks of gonorrhea. Ten years ago first began to suffer from obstruction to urination, due to stricture. Shortly after that he was seized with an attack of retention of urine, and was relieved by instruments. Some time after this, his stricture recontracting, he again had retention, complicated with perineal extravasation. This was followed by abscesses and perineal fistulæ. Numerous inadequate attempts had since been made to relieve his condition by instrumentation and cutting and draining the perineal abscesses. When I first saw him, his perineum and his whole scrotum was one mass of induration, riddled with fistulæ. The tumefaction caused by the induration prevented him from sitting upright. No urine passed or had passed for a considerable interval along the penile urethra, but leaked its way constantly out through the numerous fistulæ. After improving his general condition as much as possible, I etherized him. With whalebone filiform bougies the chief fistulous tracts were located. One of these instruments was made to pass along a fistulous tract into the bladder. With the bougies for landmarks, the patient was placed in the lithotomy position and a long, straight, median incision made, extending from the penile urethra in front of the scrotum down to and partially including the sphincter ani. The cut split the scrotum, a testicle lying on either side of it. The whole length of the diseased urethra was exposed. The entire bulbous urethra, an inch of the penile urethra anterior to the bulb, and the anterior half inch of the membranous urethra were found to be in a state of thorough disorganization. Fistulous tracts extended entirely around that portion of the urethra, showing that the burrowing pus had dissected the canal free from its adjacent tissues, leaving that space to be filled in with dense cicatrix. Besides burrowing about the urethra, purulent extravasations had invaded the tissues about the groin and the rectum. From the median incision, radiating incisions were made, laying open all these adjacent pockets. The diseased urethra existed as a hard fibrous cord, perforated in numerous places, and so disorganized and contracted that, on being split open by a longitudinal incision, little remained to mark the course of the urethral canal. This disorganized urethra was accordingly cut out, and the cicatricial nodules from the perineum and scrotum were also removed. In fact, so much tissue was removed from the perineum that in one place little for covering was left save the skin and subcutaneous tissues. A perineal vesical tube and a urethral tube were then put in place in the manner I have already described, and the perineum and scrotum were carefully sutured about the urethral tube. The latter tube was kept in place for ten days and the perineal tube for nearly three weeks. The perineal wound healed by first intention, except in the one spot where little save the skin and the subcutaneous tissues had been left. In this spot a fistulous opening remained for a time, but at the end of six weeks it closed solidly and permanently. At about the same time also the perineal tract along which the vesical tube passed closed. Now the patient is perfectly comfortable, one year after the operation, takes an 18 American sound and urinates normally. To the feel, the perineum and scrotum are soft and natural.

CASE II.—A vigorous man, thirty-six years old, had had trouble from a deep urethral stricture for about a year. This stricture had apparently originated from a preceding gonorrhea. Periodically he had been a heavy drinker. During one of his sprees he was seized with retention of urine. His bladder became overdistended and extravasation took place. I first saw the patient at the Post-Graduate Hospital, where he had been brought about four days after the extravasation had first occurred. During all this time he had not been relieved. His condition was at that time shocking. His temperature was 105°. He was cyanozed. His pulse was irregular and hardly countable. The evidences of extravasation were extreme. His scrotum was about the size of his head. The tissues of the thighs and lower abdomen were much swollen, and hard and porky to the feel. The perineum was very much infiltrated. There was no urine dribbling at the time from the penis. Owing to his condition, hardly more than a smell of ether was considered necessary or advisable. I then made one deep, long cut in the median line along the scrotum and perineum, guarding myself as well as possible from the inevitable outflow of extravasated fluid, which shot out several feet the instant it was liberated. I then made a number of superficial cuts in the scrotum to aid in the drainage. The perineal wound was next examined. On retracting the cutaneous tissues, the whole perineum presented the appearance of a vast slough, rendering it impossible to detect any landmarks. I considered it unwise to try to enter the bladder through the perineum, and it was to that decision that my patient owed his life. At that time I did not, of course, know of the existence of an extensive extravasation between the layers of the deep pelvic fascia, which a cut into the bladder through the perineum would not have relieved. I simply thought that if I entered the bladder through the perineum I should have to do so by plunging the knife through in the median line, thereby tapping the neck of the bladder. If I had tried in a careful way to find the urethra and to enter it back of the stricture, my patient would have been dead long before the completion of the operation, even had it been possible at the time to have found the urethra. I was also fear-

ful of doing damage by plunging the knife unguided through the perineal region. Another very forcible reason which presented itself to me against the perineal opening was that, owing to the extreme slough, I suspected that there had also been great destruction of the urethra, and I felt that, if the patient survived, the case would be one in which retrograde catheterization would eventually be most useful in attempting to restore the urethra and in that judgment I was also correct. I accordingly turned my attention from the perineum to the hypogastrium. I made a longitudinal suprapubic incision, opened the bladder, and gave vent to a great accumulation of clear urine. After the bladder had about two-thirds emptied itself, there came a sudden gush of foul, purulent material, which I discovered to be from an extravasation between the layers of the deep pelvic fascia. After most of this foul extravasation had flowed out, I was able to introduce my finger along the channel from which it came. It burst into the lower portion of the space of Retzius from the right side. A catheter was introduced into the cavity occupied by this extravasation and the place was flushed out with sterilized water. The patient was then put to bed. He rallied quickly, and at the end of two weeks, his condition being good and all the sloughs having come away, I successfully undertook the secondary operation of restoring the urethra. In the two weeks elapsing between the first and second operations apparently no urine had found its way through the perineal wound, and the most careful search now failed to disclose the remains of the urethra in the perineal wound. A catheter introduced at the meatus was arrested by a stricture at the upper margin of the perineal wound, but after a little manipulation it passed into the perineal space, showing a complete destruction of the urethra. That portion of the canal had evidently come away with the slough. A suitable instrument was then passed through the suprapubic cut and retrograde catheterization employed. The position of the posterior stump of the urethra was in this way located. The end of the catheter was cut down upon through a firm mass of cicatrix. The urethra ends were next dissected free from all cicatrices. A tube was passed along the urethra, uniting these cut ends, and a low level perineal vesical drainage-tube also introduced. The perineal wound was brought together loosely and left to granulate about the urethral tube. A small, soft rubber tube was introduced through the perineal tissues in order to drain the perineal space. The tubes were finally removed as in the first case. The suprapubic and perineal wounds all promptly healed, and the urine then came wholly by the urethra. The last time I saw him, four months afterward, he was passing a good stream; was in good health, and a 17 American steel sound passed easily into his bladder. Since that time, as already stated, I have heard that his condition was perfectly satisfactory to himself.

Besides the result obtained in this case from the urethral resection, there are points in connection with its management which deserve special emphasis, and which very likely are original. In this latter connection I refer especially to the employment of suprapubic cystotomy in a case of extensive extravasation of urine from vesical over-distension, not only to drain the bladder, but also as a means of reaching and relieving a deep pelvic extravasation, should such exist. I also doubt if a suprapubic cystotomy has been previously performed, one of the purposes for which was to allow at a future time, of the accomplishment of a retrograde catheterization in connection with a plastic operation on the urethra.

SOME OBSERVATIONS REGARDING MALARIA AS IT OCCURS IN LOUISIANA. ALSO QUININ AS A REMEDIAL AGENT IN THE DISEASE.

By C. D. SIMMONS, M.D.,
of Dutch Town, La.

There has been a great deal of discussion among the physicians of Louisiana relative to quinin as a remedy in the treatment of what is usually termed "Malarial Fever." In the writing of this paper it is not my intention to combat any of the arguments that have been put forth from time to time, to explain the unknown in this field, but simply to record a few facts, gathered along my pathway, that have proven to be rich in malarial findings.

It will be well at this point to mention some of the fevers simulating malaria, and in fact often connected with it, viz: Spring catarrhal fever, typhoid, thermo-malarial, thermic, and puerperal fever.

1. Spring catarrhal fever is of frequent occurrence in my practice, and though it seems to be largely a disease of childhood, it is not always confined to the young, but is met with from the cradle to the grave. Here in this locality I am satisfied that malaria plays an important part in this trouble.

2. Typhoid fever, as met with in the lowlands, is nearly always modified by malarial poisoning. The word "typho-malaria" is delusive, and would lead us to believe that we have a mixed or hybrid fever to contend with. Malaria, like the poor, is with us always, and until we fasten this fact upon our minds and take it with us in our daily rounds, little good can come from any line of study. As a rule, with few exceptions malaria complicates all diseases in the swamp lands of Louisiana, and it does this by being present in the blood for

months or years, before some other disease breaks the powers of resistance that have held it in abeyance.

3. I am confident that there is a fever prevalent here that we may conveniently call thermomalaria. It develops very rapidly during the first hot days of spring, and is very amenable to quinin.

4. Thermic fever has been studied by Drs. John Guiteras and George M. Sternberg, during their stay in the South. I have met with a great many instances of this trouble in my practice. This fever is no doubt due to the extreme heat of our climate, which has a constant tendency to throw out of balance the heat regulating centers. Cold to the head, with the bromids and phenacetin, is our best treatment. Quinin adds to the discomfort of the patient.

5. Puerperal fever has been often mistaken for malaria, but as our knowledge in this field is clearer now, mistakes will not be so frequent. The uterine douche will take the place of quinin in a greater number of instances than heretofore.

6. Malaria, pure and simple, is of frequent occurrence, the tertian type being in the majority, and, as a rule, the disease will stop at this stage if properly treated. When a case of malaria proves fatal, it is nearly always from neglect. The people generally become accustomed to the chill and fever of acute malaria, considering them matters of but little importance, and losing valuable time by taking "Patent Chill-cure," or at most, one or two small doses of quinin. The practice of every physician in this highly malarious district could testify to these neglected cases. Many lives are lost in this way. This will at once account for the large number of these cases that drift into the septenary form of the malady. It is in these neglected cases that we find such immense splenic enlargement. Last year, in a boy of eleven summers, I found a spleen that measured six inches wide by nine inches long, and upon manipulation it seemed to be nearly as thick as it was wide.

How does quinin act to prevent a return of the paroxysms of malaria? Experimental chemists tell us that if we mix tincture of guaiacum with ozonized turpentine, and then add blood to the mixture, the result is a beautiful blue color. This reaction is due to the oxidation of the guaiacum by the active oxygen or ozone found in the blood. If we previously add one part of quinin to twenty thousand of blood, the blue reaction just described is delayed, or does not occur at all. From this experiment we find that quinin has a powerful affinity for active oxygen. So when the drug enters the circulation it is of necessity attracted to the red blood-corpuscles, setting up a protective atmosphere around those life-giving bodies, defying the entrance of plasmodium to the cell.

Let us turn away from the peculiar action of quinin just cited, to a brief study of the parasite that causes the disease. A certain amount of heat, moisture, and oxygen, are necessary to the life of the parasite. For several years I have noticed that the drinking of water from certain wells caused many cases of malaria to develop, but after the first frost no new cases would occur. Now there is but one solution to this and that is, the surface, or near it, is the true producing malarial nidus, hence the surface water, after a frost, does not carry the poison of malaria to the well-water below. From these deductions it would seem that the life of the plasmodium malaria is dependent upon oxygen, as it is found near the surface.

When the plasmodium enters the blood, it, too, like quinin, is attracted to the red cells. This peculiar action is no doubt due to the fact that the corpuscles are oxygen carriers, and thereby supply the parasite with this wonderful element. Both quinin and the parasite destroy the red cells by absorbing their contained oxygen. If quinin is given in full and frequently repeated doses, especially in young subjects, it greatly lowers the normal amount of oxygen. I have noted this effect of the drug in my own practice. By this action sighing respiration is produced, showing a want of oxygen at the base of the brain.

In conclusion, if my theory is correct, the antimalarial action of quinin is dependent on the condition of the red cells; if they are filled up with parasites, their oxygen absorbed, thinned in ranks, disabled for active duty, as we find them in chronic malarial poisoning, very little good can be expected from the use of quinin. In looking about for a remedy to fill all indications, as existing in a condition as pictured above, nothing approaches so near an ideal drug as arsenic in the form of Fowler's solution. It is my belief that arsenic benefits these sufferers of malarial toxemia, chiefly through its direct blood-building power. I have not met with a single contraindication to the use of arsenic in these troubles, which is more than I can say of any other remedy for the disease. I often give Fowler's solution four or five times a day in three-drop doses. In this way it has a tendency to check waste, relieve engorged liver and spleen, and exhilarate the patient. Of course, as a rule, quinin is the greatest of all remedies for malaria, but in just such cases as I have described it will often fail. It is well known to physicians residing

in the malarial belt that quinin often proves a powerful irritant to both the alimentary and urinary tracts. It would be a bold man that would force quinin upon a case like this, by giving it subcutaneously. We have other drugs, such, for instance, as iodin, iodid of ammonia, mercury, nux vomica, iron, the mineral acids, and phenacetin, that serve as well in time of need.

CLINICAL MEMORANDA.

REPORT OF A CASE ILLUSTRATING THE DANGERS OF FORCIBLE AND RAPID DILATATION IN THE TREATMENT OF URETHRAL STRICTURE.

BY JAMES BECKETT, M.D.,
OF CHICAGO.

IN July 1894, I was called to see J. M., aged forty-three, who had been recently operated upon for urethral stricture.

The history obtained was that a few months previous to the operation, he noticed that the stream of urine was narrowed and divided, the desire to micturate becoming more and more frequent, accompanied at times with severe pain, and the quantity diminished.

In this condition he sought the advice of his physician, who arranged for an operation at the patient's home. At the time appointed, he was placed under anesthesia, and sounds ranging from a filiform bougie to a No. 18 English steel, were introduced in rapid succession.

I found the patient five days after the operation suffering from extreme vesical tenesmus, attended with the passage of only a few drops of urine; the abdomen above the pubes was brawny in appearance, boggy to the touch, and exceedingly sensitive ; there was no tumor in the perineum.

On exploring the urethra, a very tight, exquisitively sensitive stricture was discovered 5½ inches from the meatus, so tight indeed that a catheter of the very smallest size could not be introduced.

Hot application (hop poultices) were applied over and above the pubes, and in the perineum, and morphia given hypodermically for the relief of pain and tenesmus; the latter, however, still continued, though in a less aggravated form. A few days later, during a violent straining effort, the patient felt "something give way," which was followed by considerable relief and the escape from the urethra of some ill-smelling matter mixed with a small quantity of urine.

The relief was only temporary, however, the tenesmus returning the following day. From this time the patient began to give evidence of severe constitutional disturbance, rigors were frequent, and delirium marked in the evening and during the night. He continued in this state for several days, passing only a few drops of urine at a time and continually straining, when one morning a fluctuating tumor was discovered which had developed during the night. It was situated about one and a half inches below the umbilicus in the median line. This was immediately opened by a free incision, and a quart or more of urine gushed from the opening, followed by large quantities of foul-smelling pus and several sloughs.

The tenesmus was entirely relieved, the urine passing freely through the abdominal incision. But the patient was left in such a weak and debilitated condition that it was deemed best to wait sometime before proceeding farther, in order to enable him to obtain some sleep and rest, and to get him in the best possible condition for further operation; meanwhile attempts were frequently made to reach the bladder through the urethral canal, but all efforts in that direction proved futile.

It was then decided to open up the canal by perineal section. With the assistance of Drs. W. W. Barkwell and J. F. Burkholder of this city, the patient was anesthetized and placed in the lithotomy position, a Syme's staff passed down to the stricture and forced through it, an incision made into the groove of the staff commencing well in front of the stricture and extending backward about three and a half inches, laying open the urethra, including the strictured portion. The latter was composed of firm, hard cicatrical tissue about a half inch in length and was carefully dissected out. The portion of the urethra behind the stricture was very much disorganized, and after frequent attempts to reach the bladder through the wound, by enlarging the latter and cutting carefully backward in the groove of the staff, a metallic catheter was finally passed and secured. This was left in for forty-eight hours, after which the urine was allowed to drain through the perineal wound.

Recovery was fairly satisfactory; a scrotal abscess developed, and, after being freely opened and drained, healed kindly. Three sinuses were discovered communicating with the abdominal wound, which were also laid open and gave no further trouble. During the past eighteen months I have seen this case frequently. Only a few weeks ago I passed a steel sound (No. 10 English) with perfect freedom into the bladder; no instrument having been introduced for three months previously. The perineal and abdominal wounds had both entirely healed, the stream of urine was free and straight, and the patient strong and active.

It may easily be conceived how a condition as described above may be produced. A patient is anesthetized, and steel sounds of graduated sizes passed into the urethra, and forced through a hard, close stricture, the handle of the sound being depressed between the thighs each time with the intention of including the whole of the canal from meatus to bladder. The point of the sound, however, does not glide smoothly into the bladder as in the normal condition, or as easy as in a case of stricture of large caliber, but is grasped firmly by the strictured portion (according to the size of the sound), which, acting as the fulcrum, produces a very powerful leverage on depressing the handle of the sound. The point of the latter impinges forcibly each time against the anterior wall of the urethra, resulting in either perforation or such a degree of inflammation as to favor suppuration, and eventually rupture and extravasation of urine into the cellular tissue.

In the case cited, the most remarkable feature was the tendency of the urine to burrow upward toward the thorax, at no time was there any tenderness or swelling in the perineum, nor could any sense of fluctuation be felt through the rectum.

I am convinced that this method of dilating rapidly and forcibly within a short period of time, and under anesthesia, is quite frequently practised, and I have been impelled to report this particular case not in a spirit of censure, but to offer it as a plea for the more careful use of urethral sounds and for more exact discrimination between those cases suitable for dilatation, and those which require either internal or external division.

It is a difficult matter to formulate rules of differentiation in the treatment of all organic strictures, but I think the following conclusions may be quoted as being rational and conservative:

1. The surgeon should carefully study the peculiarities of each individual stricture.

2. Rapid dilatation should not be practised with sounds (forcible catheterization), but with a suitable dilator.

3. Gradual dilatation should always be attempted, occupying a period of several days at least before proceeding to internal or external urethrotomy, or to rapid dilatation.

4. When a stricture is extremely sensitive and immediately recontracts after partial or full dilation, dilatation is not only useless, but absolutely harmful and should not be persisted in, with these precautions it becomes an easy matter to decide on the best mode of procedure, with the ultimate cure of the stricture in view.

The operator is enabled to grasp the situation intelligently, instead of going blindly to work with the chances very much in favor of producing some vital injury to the urethra, on discovering which, he becomes disgusted at his own recklessness, and either abandons his patient altogether or discharges him as "cured."

CHOREA AND RHEUMATISM.

BY FREDERICK KRAUSS, M.D.,
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THE relation between rheumatism and chorea is still a much disputed question. Many careful observers have concluded that there is a decided connection between these symptomatically diverse diseases. Others are convinced of the contrary.

Sir Dyce Duckworth[1] believes that chorea is simply another variety of rheumatism, in which the brain is affected, instead of the joints. He considers that the definition of Andrew Clark—"rheumatism of the brain"—is very appropriate.

The choreic affection, he believes, is more common in girls, because the primary establishment of menstruation produces certain disturbances in the cerebral circulation that makes the brain a weak spot, which the rheumatic poisons, in certain persons, attack, producing the phenomena called chorea.

This theory becomes more tenable when we consider that both rheumatism and chorea are due to some systemic poison, the nature of which is not exactly known. In the one case, it acts upon the serous membranes of the joints, pleura, etc., while in the other the voluntary motor centers are apparently affected. The ventricles of the brain are serous cavities, lined by serous membranes (endothelium). The internal capsule, through which the voluntary motor fibers run, is in close proximity, especially at the knee, to the lateral ventricles, separated therefrom by the thin layers of nerve-cells, of the thalamus opticus, and the nucleus caudatus, from which fibers run to join it (the internal capsule).

Osler states that in 554 cases, which he had analyzed, 15.5 per cent. had a rheumatic family history, and in 15.8 per cent. of the cases there was a history of articular swelling. The statistics of the Committee of Collective Investigation of the British Medical Association, in a study of 439 cases, show that joint affections were present in 26 per cent. of the cases of chorea, Steiner, on the other hand, in a collection of 252 cases, found only 1.5 per cent. in which rheumatism was present, Osler further asks, "Do these articular affections of chorea belong to true rheumatism? Are they not analogous to the joint troubles of scarlet fever, puerperal fever, and gonorrhea, which no one now regards as truly rheumatic."

In view of this diversity of opinion, it may not be considered superfluous to report the following case of acute articular rheumatism and chorea, the latter occurring after a relapse of the rheumatism. This case is also of interest on account of the extensive heart lesions, which were present as a further complication.

The chorea, occurring during the endocarditis, might be explained also by the embolic theory, though no other symptoms of embolism were present. Another feature is that both the rheumatism and chorea were at first only manifested upon the right side.

J. H., girl, aged sixteen years, was attacked on March 9, 1894, with acute pain and swelling in right ankle and right wrist, and over the precordia. When seen by me next day, she was suffering from a severe attack of acute articular rheumatism, accompanied by the characteristic acid sweats. In addition, there were present mitral and aortic double murmurs and a pericarditic friction sound; marked dyspnea. On palpation over the precordia, the friction fremitus was plainly marked. Temperature 102°; pulse full and short—110 per minute. The patient was immediately placed between blankets and kept absolutely quiet. Blisters the size of a silver dollar were applied over the precordia, giving much relief from the pain. Sodium salicylate was given internally in ten-grain doses, repeated every two hours; milk diet. The patient immediately improved, the temperature on the fourth day being normal. No marked effusion could be outlined in the pericardium, though the friction murmur and fremitus had disappeared. The endocardial murmurs continued undiminished.

Fifth Day.—General condition very good. Was placed upon infusion of digitalis, potass. bicarb. and iodids.

Sixth Day.—Was taken with severe vomiting following ingestion of ham, which the patient managed to get

[1] *Wien. medicinische Blätter*, xvii, 1894.

through an obliging relative. The stomach became retentive after the administration of bismuth subnitrate and carbolic acid. For the past four days there had been a slight epistaxis. This now increased to an alarming degree, but was soon controlled by the snuffing up the nose of a weak solution of Monsel's salt.

The patient did well until three weeks after original attack, when a slight relapse occurred. Temperature 101°; pulse 96. This soon subsided under sodium salicylate, as before.

One week later the patient was attacked with very severe right-sided unilateral chorea, in a few days becoming bilateral. Temperature was again increased, and the cardiac condition became more marked. She was put upon rapidly increasing doses of Fowler's solution.

Five weeks after the original attack another relapse of acute rheumatism occurred, in spite of all precautions in regard to hygiene, diet, and proper regulation of the bowels, etc. This attack quickly passed off, leaving the patient free from the disease to the present day.

Seventh Week.—Chorea has almost entirely disappeared. Systolic and presystolic murmurs at the apex and aortic systolic (obstruction) murmur are heard. Temperature 99°; pulse 100. No albumin in urine. Is taking forty drops of Fowler's solution per day. Slight epistaxis.

Eighth Week.—Chorea has disappeared. Reduced Fowler's solution to fifty drops per day. Patient feels well; appetite good. Temperature is normal; murmurs continued.

Several weeks after this, the patient developed a dry, hacking cough, worse in the morning. Chest examination showed bronchial breathing and dulness over the left apex. These symptoms disappeared under increasing doses of creosote and cod-liver oil.

The heart attained full compensation after a few months, the patient gaining greatly in weight. During this interval the girl's disposition was much changed, being peevish and irritable.

The epistaxis was probably a vicarious menstruation, as she had her first menses four weeks before the beginning of the epistaxis, which latter again returned four weeks later, when it was reduced in quantity, on account of the great anemia.

A CASE OF UREMIA, OPIUM POISONING, AND THERMIC FEVER.

By THOMAS ASH CLAYTOR, M.D.,
OF WASHINGTON, D. C.

THE following is the history of a case admitted to the Pennsylvania Hospital during my term of service as a resident physician on the medical wards of that institution, which has seemed to me to be of sufficient interest to justify its report.

On July 20, 1893, Henry L., aged forty-five, an Englishman, formerly a sailor, was brought to the receiving ward by the police, who had found him lying in an open box-car, exposed to the full force of the midday sun. In his pocket was an empty ounce phial, labeled "Laudanum." At first glance, it seemed evident that he was suffering from poisoning by that drug, for his pupils were contracted to a pin point, respirations sighing and twelve to the minute, face deeply cyanosed, pulse full, but compressible, 122 to the minute, coma profound. His temperature was found to be 105⅘° F. A mild attack of thermic fever was then thought probable, but on closer examination a strongly urinous odor was detected on the breath, also marked edema of feet and legs. The urine obtained by catheterization showed a specific gravity of 1020, acid reaction, a trace of albumin, with an abundance of pale, dark granular and oily tube-casts. The diagnosis then made, and afterward concurred in by my chief, Dr. Morris J. Lewis, was uremia, opium poisoning, and thermic fever. As to the first two, I do not think there is any question or doubt, but as to the thermic fever, we have no positive data, except the high temperature and exposure to intense humid heat, in a close place (the day was very hot and damp).

For obvious reasons apomorphia was not suitable, nor was mustard water or any other mechanical emetic available, because of the deep coma. An attempt to introduce the stomach-tube was followed by slight emesis, but embarrassed the respirations to such an alarming degree that it was necessarily abandoned. The condition was critical, something had to be done, and that without delay, if the life of the patient was to be saved. As the cold bath answered two of the most marked indications, namely, antipyresis and respiratory stimulation, it was at once instituted. The man was placed in a cold bath, with an ice cap to his head, and the hose played upon him. At this time he was comatose, there was constant twitching of the fingers, but no general convulsions.

Examination of heart, lungs, liver, and spleen, proved negative. The reflexes were slightly exaggerated. In twenty-eight minutes his temperature was 104⅕° F., pulse 118, respiration 20, and he showed signs of returning consciousness. Eight minutes later he was removed from the bath. Though his temperature had been reduced and his respirations had risen to normal, the condition was very serious, cyanosis was even more marked, pulse weak and running. He was now given hypodermics of aromatic ammonia, in addition to brandy, strychnia, and digitalis, which he had received during the bath, friction was continued; atropia was used sparingly because of the uremic condition. At 4.13 P.M. (25 minutes later), respirations were becoming deeper and more regular, 21 to the minute, color improving, pulse 136, temperature 102⅗°. At 6 P.M. general condition was improving, temperature 102⅕°, pulse 134, respiration 22. He was now removed to the ward and freely stimulated with digitalis and whisky. At 10 P.M. temperature rose to 105°; there were at this time marked general convulsive movements, which prevented the accurate count of pulse and respirations, but the latter were again shallow and sighing. Patient was again plunged, reducing temperature to 103⅘°.

At seven the following morning he aroused sufficiently to give his name, but immediately relapsed into profound stupor. Urinous odor was very noticeable. Urine was found to contain nine per cent. of albumin by bulk, and casts granular and oily. During the day he received

jaborandi, elaterium, and croton oil, without any apparent result. At 9.30 P.M. the temperature, which had been as low as 102⅘°, shot up to 105⅘°, for which the cold bath was again tried, without effect as to reduction of temperature, but with marked revival from the coma. He then vomited, and shortly after 12 o'clock midnight, had a free evacuation, and was quiet the rest of the night, with a gradual fall of temperature to 100⅗°. The next morning (second day from onset) there was a marked improvement, the patient was perfectly conscious, and gave this account of himself: That he had for some time past been suffering from headache, with dizziness and dimness of vision, had been admitted to one of the large hospitals of the city, but was discharged as having nothing the matter with him; became melancholic, had delusions of persecution, and took an ounce of laudanum with suicidal intent.

On July 22d, (fourth day from onset) though bright and cheerful, was not rational. The temperature fluctuated until the 27th, (ninth day from onset) after which it remained normal. Did not regain mental balance permanently until August 2d (fifteenth day from onset). Though his recovery was slow, and hindered by a mild attack of bronchitis, he gradually improved, and at the time of his discharge, September 15th, was apparently well, except for a trace of albumin and a few casts, which continued to be present in the urine.

The above history naturally suggests the following questions: Was the high temperature, in part at least, thermic fever, or was it due wholly to the uremic poison? Was the uremic attack brought on, or in part hastened by the large dose of opium?

The first brings us to the consideration of the temperature in uremia, upon which opinions seem to differ. According to Labadie-Lagrave[1] reduction of the temperature below the normal in uremia was noted by Kien (1865), Roberts (1868), Hertz, Bilroth, Hutchinson (1870); but Bournville (in 1872 and 1873) was the first who gave himself to a minute study of the symptoms of uremia, and he came to the conclusion that, except in puerperal eclampsia, where the temperature reached 104° to 105.8°, the body heat was lowered. In 1875 Béhier, Lionville, Lacombe, and Hanot, confirmed this view. However, it has been proven more recently that if it is true that in chronic uremia, there is reduction of temperature on the contrary in acute cases, one observes often an elevation, more or less great. Numerous cases have been reported where the temperature reaches 104° F. Jaccoud states that in the common forms of uremia the temperature sometimes remains normal, but more frequently it rises to 102.2° F. or higher. Such was the case in transitory attacks, which ended in recovery; on the contrary, in fatal uremia, the temperature was nearly always lowered, the underwent an ascension high and rapid, or fell to 95° F. Bartels claimed a usual rise in temperature in acute uremia. In case of convulsions it may reach 106° or 108° F. This is seen especially as a terminal rise in cases which have an unfortunate issue. On the other hand, there may be a great reduction, even to 93° or 91° F. This occurs most frequently in cases which end in deep coma, without marked symptoms of motor irritation. Delafield ("American Text-book") claims a rise of temperature above normal. Osler[1] says the temperature is sometimes elevated, but more often it is depressed, and may sink rapidly after the attack. Hughes and Carter[2] state that the temperature is not a fixed symptom. It may be normal or above or below. High temperature more common in parenchymatous cases. In an analysis of forty cases of uremia, pure and simple, the temperature was found to be rather more often below than above normal, the highest being 104.3° and 103.8° F., few above 100° or 101° F.

I am told by Dr. Joseph M. Spellissy, who had the care of nearly one hundred cases of thermic fever at the Pennsylvania Hospital during the summer of 1892, "that a secondary rise within three or four hours after a primary temperature of 109° or more, which has been reduced to 100°, is usual. A second application of cold reduces this hyperpyrexia to moderate fever, lasting a few days. A secondary rise coming on after twenty-four hours from onset, and primary treatment, is the signal of a beginning complication or sequel."

From the above it may be seen that the high temperature, both primary and secondary, may be attributed to uremia alone, at the same time, in view of the fact, that the highest point was reached before there had been any convulsive seizure, and the recovery of the patient, together with the prolonged exposure to intense moist heat, it seems possible that the hyperpyrexia was in part, at least, due to thermic fever.

The second question (was the uremic attack brought on or at least hastened by the large dose of opium?) brings us to inquire into the effect of morphia in disease of the kidneys. According to W. Eliasson, quoted by H. C. Wood,[3] it seems to be established that morphia, at least in part, is eliminated by the kidneys; when given in large doses, morphia appears freely in the urine, but that in small doses it cannot be found, although a substance is present, giving some of the reactions of morphia, from which it is derived. Wood thinks that since in serious kidney disease, the chief channel through which they escape is choked up, opiates should be used with extreme caution. He also states that in one or two cases at the Philadelphia Hospital the administration of morphia was followed by death. Dickinson says that it is not seldom that the comatose state has come on before its time, because of the administration of opium. Labadie-Lagrave name opium among drugs to be avoided in nephritis. On the other hand Dr. A. Loomis, in 1873, advised the administration of morphia in sufficient dose to control the convulsions, claiming that at the same time it produced profuse diaphoresis, facilitated the action of cathartics and diuretics, especially digitalis. Delafield[4] says it is safe to give opium if the arteries are contracted, but if dilated, a very little may cause poisoning and death (arteries are contracted in acute uremia and dilated in chronic. Osler advises morphia. Strümpell only in cases of diarrhea and

[1] "Urologie Clinique et Maladies des reins."

[1] "Practice of Medicine."
[2] "Clinical and Experimental Study of Uremia," A. J. M., etc., 1894, N. S. cviii.
[3] "Therapeutics, Principles and Practice."
[4] "American Text-book."

vomiting. Hughes and Carter[1] think that full doses may be used with advantage. Its effects must, however, be carefully watched, as they have seen unquestionably bad results from it, especially where uremia complicates fevers.

The majority of clinicians of the present day advise the use of morphia in uremia, at the same time, from a physiological standpoint, it is contraindicated, and while I do not question its advantageous use in moderation, an overdose is, I think, capable of doing harm, by hastening the coma, as was the case with my patient.

MEDICAL PROGRESS.

Twelve Cases of Orchotomy (Castration) for Prostatic Enlargement.—Dr. Maunsell Moullin, before the February meeting of the Harveian Society of London, reported twelve cases of orchotomy attended with generally favorable results. In two cases, both under his own care, death had taken place five and nine days respectively after operation; one death was due to cerebral hemorrhage, the other from fatty degeneration of heart. In two cases, both of which ultimately recovered, traumatic delirium in severe form came on very soon after the operation. In all twelve cases, even inclusive of that which was fatal on the fifth day, there was reported a distinct improvement as to obstruction, and in those cases which remained under observation a sufficiently long time to enable the surgeon to measure the size of the prostates, there was found an appreciable diminution in size, as measured both by urethral and rectal examinations. One case, less successful than others, was that of a patient, eighty years of age, the diminution in size when measured by the finger in the rectum was not very great, and voluntary control was not regained. But as a soft catheter passed easily, whereas before only a metal one or a bougie could be used, and that with difficulty, and as the strangury, which had resisted all previous treatment, entirely disappeared, Mr. Mansell Moullin thought the case could not be considered a failure. It was never suggested that removing an obstruction at the neck of the bladder would be able to regenerate the muscular coat, if this had been destroyed by catheterism and previous cystitis. In another case the inflammation of the bladder persisted, but this again was not the fault of the operation, for the walls contained numerous sacculi, which could not be kept empty.

Respecting the traumatic delirium in two cases, already referred to, Mr. Moullin avers that it is not due to the orchotomy, but to that tendency to delirium that obtains in elderly people after severe injuries, and may even follow the administration of an anesthetic.

Pericarditis Cured by Open Incision.—RULLIER (*Arch. de med. et de pharm. Militairis*, 1896, Nos. 1 and 2). A soldier suffered from serous pericarditis. Four times the pericardial cavity was tapped and the fluid withdrawn. After the fourth aspiration a solution of iodin was injected. The fluid reappeared as before. Rullier determined to treat it as a hydrocele would be treated under similar circumstances. Under cocain anesthesia, an incision was made in the fourth intercostal space, and the pericardium opened and drained. The following day the serous secretion was profuse, but it rapidly diminished and the pericardial wound had closed by the fourth day. Recovery was delayed by a left-sided bronchro-pneumonia but was eventually complete.

At a meeting of the section in medicine of the Royal Academy (Ireland), Dr. O'Carroll (*Lancet*, May 23, 1896) read an account of a cases of suppurative pericarditis secondary to pneumonia, which had been treated by free and constant drainage. The pericardial cavity contained less and less pus, but the patient died from asthenia two months afterward. The walls of the pericardial cavity were found to be adherent everywhere but in front, where there was about a dram of pus. The puncture was made in the fourth space, a thumb's breadth internal to the line of the nipple.

THERAPEUTIC NOTES.

The Therapeutic Employment of Ovarian Tissue.—To prevent the symptoms that often follow surgical removal of the ovaries, and also those so common at the menopause, CHROBAK (*Centralblatt für Gynäkologie*, 1896, No. 20, p. 521) was led to administer ovarian tissue and to practise ovarian grafting. He accordingly had prepared an extract of the ovaries of sexually active and healthy cows, and had undertaken experiments to determine the practicability of ovarian grafting. The extract was employed in six cases in which the ovaries had been removed, and in one in which, with perfectly normal genitalia, the climacteric molimina were severe. In three of the cases of the first group, in which the treatment had covered a period sufficiently long, as well as in the remaining case, distinct improvement followed. The results of the transplantation experiments are detailed by KNAUER (*Centralblatt für Gynäkologie*, 1896, No. 20, p. 524). It was found that not only did ovaries grafted between folds of the peritoneum, or between fascia and muscle, retain for a time, at least, their integrity, but that they also continue to exercise their functional activity, as indicated by the maturation ovisacs.

The Treatment of Cerebrospinal Meningitis with Hot Baths.—Influenced by the successful results reported from the employment of hot baths in the treatment of cerebrospinal meningitis, WOLISCH (*Therapeutische Monatshefte*, 1896, No. 5, p. 254) was led to employ this measure in seven cases of epidemic type in children between five and ten years of age. Perfect recovery ensued in five and two terminated fatally. Of the latter, one was fulminating in character, and in the other the treatment was only imperfectly and inadequately applied. While the number of cases is too small to base a final opinion upon, the impression gained from observation of the cases was that the treatment had a favorably modifying influence upon the course of the disease. The patient is carefully placed in water at a temperature between 90.5° and 92.8° F., and hot water is gradually added until the temperature reaches 104° F., an ice-bag or Leiter's coil being applied to the head.

[1] "Clinical and Experimental Study of Uremia," A. J. M., etc., 1894, N. S. cviii.

THE MEDICAL NEWS.

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SATURDAY, JULY 25, 1896.

THE CHARITIES COMMISSIONERS AND THE "DRINK CURE" AGAIN.

OUR protestations against the outrage which the Charities Commissioners of this city have committed upon Bellevue Hospital and the medical profession, particularly to the physicians who comprise the Medical Board of that Hospital, by allowing the owner of a secret treatment of alcoholism to experiment with it in the wards of a public institution, have been ably seconded, we are glad to say, by the public press of this city, and particularly by the *Herald*, the *Tribune*, the *Advertiser*, and the *Times*.

The fact that the experiment which was suggested by the mayor and ordered by the Commissioners was the outcome of a carefully prepared plan by shrewd men of business, owners of the stock company whose fortunes they endeavored to bolster, has been put forward in a plain and incontrovertible way. If the Commissioners of Charities of New York City persist in the face of the revelations which have been brought to light by the MEDICAL NEWS and the public press, in furthering the interest of this stock company, they lay themselves open to the charge of collusion with a private corporation, and to that of prostituting the privileges of their office to further personal designs.

The gentlemen who are responsible for the present therapeutic fiasco at Bellevue Hospital, whether the onus of it lies with the chief executive of this city, as the Commissioners would have us believe, or whether it rests with the Commissioners themselves have been seized with such a desire to counteract the drink habit that it amounts to an obsession. Such fanatical enthusiasm is not begotten among strictly business men by unalloyed motives of humanity, and to conceal the actual motives behind such attempted explanation is puerile, wilfully evasive, and ludicrously absurd.

Why, it may reasonably be asked, should the Commissioners of Charities lend themselves to the test of a substance which has nothing to commend it save the biased representations of its owners, and the commendation of an ubiquitous newspaper man who has the ear and the confidence of his honor, the Mayor, when they can satiate their *furor experimentiæ* with a substance like the Keely cure, which, until a year or two ago, was supported and advocated on grounds of personal experience by hundreds of individuals whose talents and positions entitled them to be heard with faith and respect? To be sure the Keely cure is now, practically, a thing of the past, and exists only in those recesses of our memory where things which we would forget are stowed. But before its dissolution it fulfilled the inventor's purpose; it gave him notoriety, which a few mistake for genuine fame, and it made him wealthy.

Must we go through the agonies attending the birth of another Keely cure only to find that the travail brings forth a dead issue, merely to satisfy the rudimentary aspirations of the present Charities Commissioners' board? We implore the Commissioners to spare us the chagrin and pain of bearing further witness to their rude and impotent endeavors. If they hearken not to our counsel we shall be put to the disagreeable task of pointing out to them, in detail, how they have neither the right

which they claim, nor the privilege, to which they aspire, to pursue their present course. The necessity of construing for them the simple rules which should govern their conduct so that they may be relieved of the horrible imputation of being a board of puerile *dilettanti*, we trust may also be spared us.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

THE study of pedagogy is coming to occupy a prominent position in the curriculum of our colleges and universities. In this direction the University of Pennsylvania, the University of Chicago, and Columbia College have made the most philosophic advances. In a popular way the association of teachers, which has just completed its session at Buffalo, shows a vigor and enterprise which promises much. We have before us a very strong article on medical pedagogy prepared during the past spring by a committee on the Association of American Colleges and though this work is incomplete, we shall look with unusual interest for the full report which may be expected in the course of another year. This is, we believe, the first effort to consider medical education from the modern pedagogic standpoint. This syllabus, as it is called was prepared at two conferences held in Chicago and Detroit during the months of February and March of the present year, and it attempts to give an outline of an ideal course of study for a medical school and some definite details as to the equipment of each department, the cost of this equipment and the method of presenting each group of medical studies.

The committee first fixed upon a unit, which was termed the recitation period. This period was assumed to consume, for classroom work and study, two and a half hours of the student's time. The minimum year in a medical school was assumed to consist of six hundred of these recitation hours, or twenty recitation periods a week for thirty weeks, and a proportionate number for schools having longer or shorter terms than thirty weeks. The committee recommends the division of the term into two semesters of three hundred recitation periods each.

Some very definite information is given on page 6, of the syllabus to teachers preparing students for admission to medical schools.

The disposition of the course of study during the four years of six hundred recitation periods each, is given in four graphic diagrams which appeal at once to the eye. These diagrams show that the committee consider general chemistry a study which ought to be required on admission. The large amount of space given to anatomy, physiology, pathology, and the small amount of space given materia medica will not receive the immediate approval of all of our readers, nor will the relegation of the clinics to the third or fourth years exclusively, be considered wise or rational. The simple course of study of the old medical schools has hardly prepared us for the rather complex course of study recommended in this syllabus. We are at a loss also to understand why anthropometry should be introduced into the medical curriculum, and why two or three recitation periods should be given to elective students during the last three years. In regard to electives, the committee urges that all colleges allow a small margin of electives to begin in the second year, and that each college make this work cover such branches as it is able to offer in the best quality. The value of even a small proportion, say five-one hundredths, of elective work, cannot be overestimated when the resources of the school are such as to permit. Properly conducted, the electives allow a choice of work adapted to the needs or inclinations of the students.

The syllabus then discusses in detail the method of teaching anatomy, histology, physiology, and pathology, and gives a very minute account of the equipment and management of these departments. This is probably the most valuable portion of the syllabus, and if it could receive the careful consideration of our medical faculties, it would not only improve the character and quality of the laboratory work, but it would economize and systemize this very important department of our medical colleges. The portion of this syllabus for which Dr. W. S. Hall and Dr. D. H. Galloway are responsibe, is most deserving of commendation. We expect to see equally radical recommendations in the next report of this com-

mittee upon the direction, equipment, and pedagogic spirit of the more practical branches of the medical curriculum.

THE DIAGNOSTIC VALUE OF THE APPEARANCE OF THE TONGUE.

ALTHOUGH there have been some clinicians who have had the temerity to assert that the appearance of the tongue gives us no information of value as to the state of the digestive apparatus or the general system, physicians almost without exception, examine this organ with considerable care in all important cases. While it may be true that when making a diagnosis, too much importance should not be attached to this organ, it is also a fact that he who ignores it, deliberately puts aside a diagnostic aid of no little significance.

The three conditions which we should note in examining this organ are its coating, its movement, and its shape. The coating, which upon the posterior part of the organ is smooth, pasty, and yellow, nearly always indicates a condition of hepatic torpor or biliousness, or if it be white and rather dry and rough, this coating may, in an adult, point to the excessive use of milk. Again, every one with experience knows that the tongue is one of the most efficient aids to diagnosis that we have in the earliest stages of enteric fever, when it appears rather more narrow than normal, with a coated center and bright red edges. Later on its slow projection and retraction on the demand of the physician indicates clearly the degree of mental hebetude and the physical depression of the patient. The coating of the tongue in enteric fever, which is very heavy and discolored if the mouth is not well cleansed by the nurse, shows the perversion of salivary secretion and epithelial growth; and the lips and teeth, covered by sordes, indicate that the patient breathes through his mouth and fails to move his tongue. Again, in childhood we find three conditions of the tongue of considerable diagnostic import. One of these is the broad and flabby tongue seen in the state, called by Eustace Smith, "mucous disease," in which all the mucous membranes of the body are affected by a catarrhal process. Scattered through the grayish coating of such a tongue, which is usually smooth and very moist, are patches in which the epithelium and the coating have been shed, leaving red spots which have an irregular outline, somewhat resembling that seen in the markings on a worm-eaten leaf.

The second of these conditions of which we have spoken, is that of the tongue in acute gastric catarrh. The coating, which is both light in weight and color, has scattered over it bright red dots which are not raised above the surface and are very numerous. Somewhat like this tongue is the so-called "strawberry tongue" of scarlet fever, in which the red fungiform papillæ project above the coating.

In advanced exhausting disease, such as diabetes or tuberculosis of the lungs, or abdominal viscera, the tongue often becomes narrow, hard and pointed, forming what is called a "parrot tongue," a state of this organ which speaks ill for the patient's recovery. In all grave fevers, a moist tongue is a hopeful sign, and a dry tongue an evil omen.

Unilateral coating of the tongue may be due to a decayed or ragged tooth, or to a disordered function of the second division of the fifth nerve.

Discoloration of the tongue may be due to bismuth or iron when the color will be black; to laudanum, chocolate, or tobacco, when it will be brown, and, therefore, any marked change in its appearance indicates the drug or food which the patient has swallowed.

The color of the tongue itself is also worthy of note, for it is extremely pale in the anemia of renal disease, of chlorosis and pernicious anemia, and cyanotic and blue in the advanced stages of those diseases which interfere with the proper oxidation of the blood.

Scars on the tongue, or the presence of freshly made bites of its edges, discovered by the patient on arising from bed, may indicate the unrecognized presence of a nocturnal epilepsy; an ulceration, if it be single, may be due to a chancre or epithelioma, in which case the cervical glands may be enlarged. Again, multiple ulcerations, if chronic, may be due to tuberculosis or to the mucous patches of syphilis. If the ulceration is

acute, it is probably an attack of ulcerative stomatitis.

The movements of the tongue are also worthy of note. If paralyzed from an attack of hemiplegia, we will find that it is protruded toward the paralyzed side, and it may become immobile in glosso-labio-pharyngeal paralysis. Tremors of the tongue not only are seen in the late stages of exhausting diseases, but in numerous nervous affections, such as bulbar paralysis and in insular sclerosis. It is also often affected by tremors in paretic dementia and chronic alcoholism. Finally spasm of the tongue may occur, generally as a manifestation of hysteria.

H. A. HARE, M.D.

ECHOES AND NEWS.

Smallpox at Gloucester. — Since the beginning of the present epidemic, 1995 cases of smallpox have occurred at Gloucester, England. A few cases are still reported each week, as well as an occasional death.

A Resignation.—Dr. Mazyck P. Ravenel has resigned the position of bacteriologist to the State of New Jersey. He will shortly leave Princeton and return to Philadelphia, where he will act as director of the laboratory for the Pennsylvania Live Stock Commission.

Mr. Lawson Tait and the British Medical Journal.—From indications that seem to abound in England at the present time, Mr. Tait is going to unroll a large bundle of discord at the approaching meeting of the British Medical Association. A strong enemity has existed between him and Mr. Ernest Hart, the editor of the journal, for a number of years.

Venereal Disease in the British Army in India.—According to a recent report made by the Sanitary Commissioner with the Indian Government, the British Army in India suffers more from this class of diseases than any army now in existence. During 1894, an average of over three thousand soldiers were constantly disabled from this cause alone.

The New York Post-Graduate.—The fifteenth annual announcement of the New York Post-Graduate Medical School and Hospital has just been issued. Five hundred and forty-two physicians from all over this continent have recorded their names at the institution during the past year. More than one thousand operations were performed in the Hospital, while nearly twenty thousand patients were treated in the outdoor department.

The Views of Professor Langerhaus.—Since the report of the investigation regarding the unfortunate death of his child after an injection of diphtheria antitoxin, Professor Langerhaus has published a letter in the *Berliner klinische Wochenschrift* in which he asserts his adherence to his original views concerning the death.

Instructors for the Blind.—The American Association of Instructors of the Blind met in Pittsburg on the 14th instant. Many thoughtful and interesting papers were read. It is a matter of surprise to note that one essayist deprecated the idea of teaching music to the blind, because, he believed, the musical talent possessed by them was greatly inferior to that of other people, and hence the time thus occupied was to a degree wasted.

Pathology by Telegraph.—An English exchange takes occasion to point out the inaccuracies of telegraphic reports of scientific news, by which great injustice is often done scientific investigators by presenting their work in a ridiculous light. An instance is given of the New York agency reporting a cure for acute mania, which consisted in the withdrawal of four ounces of cerebrospinal fluid by lumbar puncture. The comments were not less remarkable than the statement.

Beriberi and Drinking Water. — The *British Medical Journal* gives a brief account of two epidemics of this disease occurring on board vessels whose crews were perfectly healthy until they were forced to take water from ports where beriberi was prevalent. About four or five weeks after beginning the use of this water, the disease made its appearance, this period corresponding very closely with the recognized period of incubation for the malady.

The Wilhelm Meyer Memorial.—On the authority of Dr. Felix Semon, it is announced that the sum of 20,000 marks required to erect a memorial to the late Dr. Meyer of Copenhagen, the discoverer of adenoid growths in the pharynx, has already been subscribed and the success of the undertaking is assured. It is with pride we observe that the United States has contributed a larger sum than any other single nation. The amount of relief that has been conferred by the use of Dr. Meyer's suggestion in this country alone is immeasurable.

A New Parisian Affection.—An epidemic of mumps has made its appearance in Paris, chiefly afflicting adults. The reason why this infantile malady should now attack those of mature years, in whom an invasion during childhood seems to give no immunity, is yet a mystery to the physicians.

The Protection of Blood-Brotherhood. — In the light of modern inoculation by the injection of blood from the immune, it has been suggested that it may be possible to protect African explorers by blood from the healthy natives. In the case of Stanley, it is known that he submitted to the transfusion of native blood some fifty times in the practice of the rite of blood-brotherhood, and it is not impossible that to this was due his exemption from the fatal fevers of that climate.

Silver in Surgery.—Although the ophthalmic surgeon has long recognized the efficacy of silver as an antiseptic.

Professor Credé of Dresden, has recently presented the further claims of this metal to the attention of the general surgeon. Lactate of silver is an excellent germicide, but its easy solubility (in fifteen parts of water) renders it rather dangerous as a dressing. The citrate, however, is only soluble in 3800 parts of water, and is therefore quite safe. It is found that a dilution of silver of even 1–80,000 still retains appreciable antiseptic qualities, while a solution of sublimate weaker than 1–20,000 is worthless. A novel suggestion is the use of thin sheets of metallic silver spread upon linen cloth as a protective dressing in surgery. It is claimed that even in the occurrence of suppuration, the action of the products of the bacteria produces a lactate of silver, which prevents their further development.

A Code of Medical Ethics.—To the graduating class in the medical department of the University of Pennsylvania, Dr. H. C. Wood said: "Consider every member of the profession as one of your own family, and having an inherent right to your medical services, but do not abuse this right, consider any discovery or invention you may make as belonging to the general profession; never in any way laud your own medical skill or attempt to supplant in public or private estimation one of your medical brethren; join as soon as may be the incorporated companies of your fellows for scientific and social intercourse, and for the cultivation of that professional conscience which often binds men more closely than their personal sense of right and wrong; through good and ill report, stand by members of your own profession, unless they be guilty of moral evil."—*Medical Age.*

Their Vocation Mistaken.—A heavily veiled woman recently asked for a private interview with the janitor of the Baltimore College of Physicians and Surgeons, in which she solicited the assistance of that institution. She stated that a man who had done her a wrong for which she wanted to be avenged, was now an invalid and in her power; and she wished a physician sent who would quickly dispatch him, after which the College could have him rapidly dissected, thus avoiding the possibility of detection. She had understood that such acts were often performed by medical colleges, and for this favor she would pay handsomely.

The New Medical School for Women in Russia.—Miss Bogolubska, a Russian women, obtained a medical education in countries outside her own. She returned to Russia after graduating from the University of Berne, but was not allowed to practise as a physician. But sick people she would care for, and set to work as a nurse. She had been born in a mining village and understood the common people. She had worked eight years, when, in the cholera of 1892, she was allowed to labor among the cholera-stricken peasants. Her labors afforded such an object-lesson that the Czar allowed her to take the Russian degree, which not only gives her the right to practise in any part of the empire, but a medical school for women, which is thronged with applicants, has been reopened, after having been closed for political reasons, largely through this example.

The Medical News at the Johns Hopkins.—In the *Johns Hopkins Bulletin* for May–June, is a long list of the medico-scientific publications, chiefly journals, that are available in the public and private libraries of Baltimore. Only one journal, the *Archiv of Virchow*, is set down as being in six libraries. The *Lancet* and *British Medical Journal* are to be found in four, while the MEDICAL NEWS is in five. No other American medical periodical, if the *Index Catalogue* be excepted, has a greater number of friends. The last-named publication is in six libraries. Seventeen libraries only are taken into the account. Of these, ten are the property of institutions, while seven of them belong to members of the teaching staff at the Hospital. Among the latter are Drs. Welch, Osler, Kelly, Halsted, and Hurd.

Lemuel Shattuck, the Pioneer Sanitarian of Massachusetts.—The current number of the *Boston Medical and Surgical Journal* has, in its editorial columns, the following reference to one of the file-leaders in American sanitation, Mr. Lemuel Shattuck. It says: "The report of the 'Sanitary Commission of Massachusetts,' which was presented to the Legislature in 1850, has been justly characterized as 'the first *great* step in the sanitary work of our times,' in the United States. The report was chiefly the work of Mr. Lemuel Shattuck of Boston, chairman of the commission. 'I remember Mr. Shattuck well,' said Dr. Henry I. Bowditch, in his 'Centennial Discourse on Public Hygiene,' in 1876, 'calm in his perfect confidence in the future of preventive measures to check disease, he walked almost alone the streets of his native city, not only unsustained by the profession, but considered by most of them as an offense. . . . The public, ignorant of hygiene, treated him no better. The report fell still-born from the State printer's hands. Its recommendations were ignored.' Prominent among the more comprehensive measures urged by Lemuel Shattuck, the following may be mentioned: The establishment of a general board of health for the State; the appointment of a local board of health in every city and town; the adoption of a general and uniform system of registration of births, deaths, and marriages; the taking of a decennial census, beginning with 1855; the revision of the laws relating to coroners; the control and regulation of cemeteries by boards of health. The development of public and municipal hygiene since the Massachusetts State Board of Health and Vital Statistics was established in 1869, has followed to a striking degree the lines marked out by Lemuel Shattuck in 1849."

The Cholera Bacillus in Subjects Apparently Healthy.—The Cairo, Egypt, letter to the *London Lancet*, July 4th, contains reference to several cases of the presence of cholera bacilli in apparently healthy people. The communication is probably from the pen of Dr. Armand Ruffer, who went from England to become the chief bacteriologist to the sanitary office of the Egyptian

Government. The writer makes the following statement: "It was during the Hamburg epidemic that German observers pointed out that a man apparently well and at his usual vocations might yet contain the comma bacilli in his intestines and be a potent means for spreading the disease. Several cases confirmatory to this have been seen in Cairo this month, and there are now two men in one of the cholera hospitals who were sent there on suspicion from different villages, because each of them was seen to vomit once by a native medical man searching for cholera. They both looked extremely well, and complained bitterly at having been brought to the hospital among a lot of dying folk. Both denied all diarrhea and previous vomiting, but the stools showed unmistakable bacilli, and continued in both cases to show them a week after admission to hospital. There are many things yet to be learned about this fell disease."

SOCIETY PROCEEDINGS.

ONE HUNDRED AND FIFTEENTH ANNIVERSARY OF THE MASSACHUSETTS MEDICAL SOCIETY, HELD IN BOSTON, JUNE 9 AND 10, 1896.

(Concluded.)

C. E. EDSON, M.D., of Roxbury, read a paper upon

THE PULMONARY INVALID IN COLORADO.

He said that a short distance on the eastern slope of the mountains, in the "invalid belt," meant a great difference in the climatic conditions. This was particularly true of the neighborhood of Colorado Springs. It was evident, therefore, that it did not suffice to send a person simply "to Colorado Springs." A most important point was to have the patient under constant and proper medical supervision at Colorado, for on arrival there the fight had only just begun. The City of Denver is often smoky, and a city anywhere is not a desirable place for the pulmonary invalid. East and west of the city the atmosphere is quite clear, and the elevation one thousand feet less than that of the Springs, and much more comfortable to many invalids. Montclair, University Park, and Berkley are suitable locations. Outdoor life in Colorado, he said, did not necessitate "roughing it," and should not do that. At first there is almost a magical gain in weight, but the bronzed face and the appearance of health do not indicate the true condition of the chest. After a relapse, often the result of imprudence, the improvement is not nearly so rapid as at first. The secret of success in Colorado is living a large part of the time in the open air, but without exercise or exertion. At first the elevation alone causes sufficient pulmonary work. After a few weeks the patient should begin by walking not more than an eighth or a quarter of a mile, steadfastly resisting the desire to do more. Care should be taken to select a house with a sheltered porch. Horseback riding is to be long deferred, and most cautiously begun, for it had proved a dire cause of hemorrhage. This same objection applies with double force to bicycling. Driving may be indulged in almost from the start, providing a jolting vehicle be not selected. The speaker said that the warmth is all in the sunshine. Thus, he had seen the thermometer in the sun register 90° F., and at the same time, a short distance away in the shade, the thermometer would stand at 40° F. This should be borne in mind by the invalid. Pulmonary invalids should be particularly careful to avoid many of the exciting outdoor sports of the West, as well as the seductive pleasures of the smoking-rooms of the clubs. The West is essentially a *man's* country.

V. Y. BOWDITCH, M.D., of Boston, read a paper on

THE TREATMENT OF PHTHISIS IN SANITARIA NEAR OUR HOMES,

Based upon five years' experience in the sanitarium for pulmonary diseases at Sharon, Mass. He said that, so far as he knew, this was the only institution of the kind in Massachusetts intended only for consumptives of limited means. In a previous paper, read before the Climatological Society, in Washington, D. C., in 1895, he had reported upon forty cases of consumption treated at Sharon. Ten were reported as arrested. Of twenty-four treated in the last two years, seven left the sanitarium with an arrest of the disease. Of the remaining seventeen, one was a suspicious or doubtful case. She left at the end of four months in perfect health. In twelve others, phthisis was more or less advanced in one or both lungs. Eight showed a greater or less improvement, and four did not. Five of the ten cases reported before the Climatological Society as arrested had left the sanitarium subsequently in good condition. It was impossible in a paper to convey to others the impressions made upon the clinician by actual observation of the patients. He would say, however, that the percentage of cases of arrest or cure of tuberculosis in the sanitarium had been larger than he should have expected under other circumstances. He was aware that it might be objected that in some instances the diagnosis had not been confirmed by finding the tubercle bacilli in the sputum, but it was known that the absence of bacilli was no proof of the absence of tubercular disease, and to him a certain change in the character of the percussion note, or of the respiratory murmur in the apex of the lung, associated with fever, malaise, and loss of flesh, meant infinitely more than the mere evidence of the microscope alone, whether positive or negative. Out of sixty-four cases of phthisis treated in the sanitarium in the last five years, twenty-two were classed as arrested. In two, the disease reappeared a few months later. Of the three who died, one died from some abdominal tumor, without evidence of pulmonary disease; one died of some rectal disease, and the other died of pulmonary tuberculosis, after having gone back to a mode of life which had been expressly forbidden by the medical advisers. Granting that, as Austin Flint claimed, about eleven per cent. were self-limited, he felt justified in maintaining that the results given rest on something much more than a mere self-limitation of the disease, and that they warranted the establishment of similar institutions in the vicinity of large cities or towns. He still felt convinced that fresh air, sunlight, good food, judicious exercise were the chief factors in whatever good results had been obtained. The so-called "peppermint cure" had been tried without any

special results, so far as any curative action was concerned, although in some instances it seemed to diminish the cough. Klebs' antiphthisin had been tried carefully in several cases, but with negative result. Creosote had been used, but without any special evidence of benefit, except as regards its action on digestion. He had never been able to give the large doses of creosote recommended by some physicians, owing to the disastrous effect on the stomach. Tuberculin had not been used, because of a former experience, which had led him to advise against it. Regular hours of sleep, rest in the open air, even in the coldest winter weather, regulated exercise, and pulmonary gymnastics were the important elements in the treatment. He had never seen any harm from the pneumatic cabinet, and many patients had spoken of the relief it afforded to the breathing. The usual tonics were freely given, and special attention was paid to the condition of the stomach and bowels. If patients were feverish, quiet was recommended, rather than exercise. The floors and walls of the sanitarium were wiped, not swept. A special endeavor had been made to secure for these persons occupation in the open air after they had recovered sufficiently to leave the sanitarium. He had been surprised to find how quickly these patients became contented and happy in the sanitarium.

DR. F. I. KNIGHT, in discussing the paper, said that as long as the treatment of tuberculosis was the treatment of the condition of the patient, and not of the disease specifically, the closer the medical supervision, the better the result for the patient. After an almost endless search for specifics, we had fallen back upon the treatment of the general condition of the patient. This held good as much in Colorado as at home. As had been said, the effect upon the patient of knowing his condition and of being surrounded by other pulmonary invalids was not deleterious. He called attention to the danger of allowing these patients to make merry beyond their strength, as was too often done. The moral effect of a sanitarium was desirable, as impressing upon the patient the fact that it was a serious fight for life and health. In one of the German sanitaria there was a wise motto hung on the walls: "Patients do not come here to be amused, but to get well."

ALFRED WORCESTER, M.D., of Waltham, presented a paper entitled

THE TREATMENT OF TUBERCULOSIS BY THE INJECTION OF TUBERCULIN AND ITS DERIVATIVES.

He said that while the finding of tubercle bacilli in the sputum was a useful confirmatory test, the absence of such bacilli did not necessarily exclude tuberculosis. Personally, he would prefer to rely upon the clinical evidence of the disease. The tuberculin test was far more reliable, for long before the general health had been affected, or the tubercle bacilli had been thrown out in the sputa, this test would reveal the presence of tuberculosis. Its value in diagnosis could be easily demonstrated; it was different regarding its therapeutic value. Perhaps the best work in this line has been done by Professor Brieger, in the Berlin Charité. In his own work he had endeavored to follow out what he had seen done there by Professor Brieger. The diagnostic value of tuberculin was due to its poisonous effects upon the tuberculous, when given in doses which would not prove poisonous to the non-tuberculous. It was perhaps not well known that by giving small doses of tuberculin daily to a tuberculous patient, an immunity to tuberculosis could be established in such an individual. This constitutes the modern therapeutic use of tuberculin. He believed that this acquired immunity to the poison of tuberculin was often a great advantage to the tuberculous patient. It was claimed by some clinicians that pure tuberculosis caused no fever, but whether this was so or not, it should be remembered that tuberculin is suitable only for non-febrile cases, for it is essential that the tuberculin treatment be carried out in such a manner as to avoid the occurrence of fever.

In his own experience, tuberculin alone had been used in five cases, with antiphthisin in two cases, and antiphthisin alone in twenty-two cases. The general treatment was the same for all. The peppermint treatment had been used in a number of cases, but it was found impossible to use the original mixture on account of the large quantity of alcohol it contained. However, the inhalation of the peppermint had been found so soothing to the cough that it had been continued. In his cases the temperature had been noted every two hours by day, and every four hours by night. He had used pure tuberculin in seven patients. In two there was so much difficulty in establishing a tolerance that antiphthisin was used instead. No harmful results were observed, and only once was there abscess formation. This was due to the failure to observe the cloudiness in the tuberculin, and its unfitness for use. Two of the five cases in which only tuberculin was used had recovered sufficiently to be practically well, and to return to their occupations. Two of these patients appeared to be in a desperate condition, and he should not have expected from their appearance at the commencement of the treatment that they would have lived so long. If he were correct in his observations upon these particular cases, he certainly had been remiss in the past, because he had seen many such cases go on from bad to worse until death had kindly brought relief. It was better, he thought, to try to do all we could for suffering humanity —to be a deluded optimist, than a scientific pessimist. If it were true that each organism excretes its own specific poison, and that the bacilli excrete a particular poison, each of its own kind, then it was possible that tuberculin contained besides the poison affecting the animal preyed upon, the specific poison for the bacilli themselves. If it could be shown that the death of the bacilli were caused, not by exhaustion of the proper food in the culture medium, but by the excretion into it of their particular poison, then we might reasonably hope for the isolation of this poison. What we needed was something which would kill the bacilli of tuberculosis in the tuberculous patient without injuring the patient in any way. Professor Klebs claimed that this had been found in his antiphthisin, which was supposed to be composed of a chemical modification of tuberculin, containing all the germicidal and curative principles, without the toxins. This claim had certainly been bitterly disputed, but it had also been supported by many competent observers. Of the twenty-two cases which he

had treated with antiphthisin, ten had been in such an advanced stage of the disease that if none had improved it would have been little to the discredit of the treatment; but in four there was marked improvement, and of the five which did not improve, in only one was the treatment carried out for more than a week or two. He had certainly been greatly encouraged by his experience with antiphthisin, even in these nine desperate cases. Nine of the cases were not nearly so ill, yet a number had not shown the improvement one would have naturally expected, and three had grown worse. He would say, therefore, that the cases treated with tuberculin had done better than those treated with antiphthisin.

R. H. CHITTENDEN, M.D., of New Haven, presented a paper upon

NUCLEINS AND NUCLEO-PROTEIDS IN THEIR RELATION TO INTERNAL SECRETION.

He said that it was now known that the removal of the pancreas or liver caused death, because of the deprivation of the system of those internal secretions emanating from these glands, and influencing the general metabolism of the body. Experiments had shown that the pancreatic gland poured into the blood some secretion which destroyed the sugar in the blood, and which was absolutely essential to the maintenance of the physiological equilibrium. This was not true of all glands, at least not to the same extent. It had been shown that in the suprarenals the active principle of the secretion was obtained only in the medulla of the gland. The secretion of these glands is soluble in water, dilute alcohol, and in aqueous solutions it dialyzes readily through parchment; hence, the active principle cannot be a proteid body. It was moreover fairly stable, and also fairly resistant to the action of the gastric juice. Its physiological power was destroyed by the action of alkalies, oxidizing agents, and by continued boiling. It was apparently a powerful reducing body, and by oxidation, a rose-red color was produced, accompanied by a rapid loss of physiological action. It had been estimated that one eight-hundredth of a grain of the pure active principle was sufficient to produce physiological results on the heart and arteries of an adult man; hence the amount actually elaborated by the suprarenal gland must be exceedingly small.

The thyroid principle is an organic iodin compound, containing a large proportion of iodin and considerable phosphorus in organic combination. Thyro-iodin can be prepared from the thyroid glands of man and animals by boiling the glands with sulphuric acid, or treating them with digestive fluids. The iodin is in firm combination. The bulk of the compound consists of an albumin and a globulin. The physiological activity of the thyroid gland has been proved by experiment to be due to thyro-iodin, and excessive doses of this substance produce the same symptoms as large doses of the thyroid gland. To the chemist it seemed evident that the different gland cells must be endowed with a distinctive form of cell activity. Cell protoplasm, whatever its origin, has a certain uniformity of composition, and the most characteristic bodies were the nucleo-albumins and the nucleo-proteids. They are characterized by containing more or less phosphorus. Nucleic acid is a white, amorphous powder, soluble in water, and having a strong affinity for all proteids. It contains as much as ten per cent. of phosphorus. But under the head of nucleic acid we had to deal with a large class of bodies, giving a diversity of internal structure, clearly suggestive of corresponding differences of function. One or more of these acids was to be found in every cell of the body, generally combined with some form of proteid. The ready convertibility of these nucleins, and the fact that many other catabolic products may be obtained from them, afford good reasons for believing that the nucleins and the nucleo-proteids are the most probable antecedents of the internal secretions.

E. S. BOLAND, M.D., of South Boston, presented a paper upon

EXTRAUTERINE PREGNANCY IN ITS RELATION TO THE GENERAL PRACTITIONER.

He said that from June, 1891, to June, 1896, he had attended 851 pregnancies, and had met with five cases of ectopic gestation. All five ruptured before the diagnosis was made. They were operated upon, and made a good recovery. He thought it probable that many of these cases were overlooked, or wrongly diagnosticated. The pinched face, clammy perspiration, shallow breathing and feeble voice, and the feeble and irregular pulse, should lead the physician to at once conclude that some terrible abdominal accident had happened. If these symptoms were associated with a history of irregular menstruation or cessation of the flow, there was good ground for believing that one had to deal with a ruptured ectopic gestation. He had not found digital examination per vaginam of much value after rupture, except in excluding uterine pregnancy. The discharge of decidua had occurred in almost all of his cases. In two there had been nothing characteristic of the true condition until the occurrence of rupture. After this occurrence the physician should be able to make the diagnosis, and should insist upon prompt operation. Ice had been recommended by some to check the hemorrhage, but if it were depended upon, it was probable that the undertaker would continue its use. The operation should, whenever possible, be done by a competent surgeon. The after-treatment should embrace the use of sterilized salt solution and strychnia.

M. H. RICHARDSON, M.D., of Boston, gave an abstract of his paper on

ECTOPIC GESTATION,

Referring particularly to the diagnosis and treatment. He said it was admitted generally that conception took place, in the vast majority of cases, in some part of the Fallopian tube. The observations regarding the occurrence of abdominal pregnancy are now believed to be unreliable and misleading, and that supposed cases of abdominal pregnancy are really due to rupture of a tubal gestation. Out of 60,000 cases treated in Braun's clinic in seven years, only five were extrauterine pregnancies. Formad, in 3500 autopsies, found thirty-five cases. Modern observations, however, show that it is by no means so infrequent. In one year at the Massachusetts General Hospital, out of about 300 laparotomies, there were twelve operations for

extrauterine pregnancy. He had seen several cases in which rupture of a tubal pregnancy had taken place before the time of the occurrence of the next menstrual period. The commonest variation in menstruation is that in which the flow is delayed for a few days or weeks, and when it does begin is usually scanty or irregular. It had been found that under the microscope differentiation could not be made always between the decidual shreds and those passed in some cases of dysmenorrhea. The diagnosis of extrauterine pregnancy was not usually difficult. He had known it to be mistaken, however, for a simple miscarriage, and also the diagnosis of extrauterine pregnancy to be made in cases of subserous fibroids. Between rupture of an extrauterine pregnancy and rupture of other sacs the diagnosis was often very difficult. Hemorrhage from chronic salpingitis and from other sources made it impossible to establish the diagnosis in the absence of the usual signs of pregnancy. Under special conditions, the policy of palliation might be employed, but ordinarily prompt laparotomy was the only proper course. Were the objections to laparotomy tenfold greater, he would still recommend this operation as the best and safest method of treating extrauterine pregnancy. In intraperitoneal ruptures immediate abdominal section was demanded in every instance, except where the patient was evidently moribund. With prompt resort to these modern methods of treatment, he thought, in time the mortality from extrauterine pregnancy would be as slight as the mortality is now from normal pregnancy.

H. P. BOWDITCH, M.D., of Boston, delivered the annual discourse upon

VIVISECTION.

He took for his theme the recent effort of the anti-vivisectionists to secure by legislation the prevention of vivisection. He said that it needed no professional education to know that medical science must be based upon physiology. Physiology could only hope to advance by a resort in certain instances to vivisection. The opposition movement sprang from one of the noblest instincts of the human breast—the desire to prevent suffering. In considering this "misguided benevolence" one was reminded of a recent utterance of Mr. Roosevelt: "Conscience without common sense may lead to folly, which is the handmaiden of crime." These people imperatively demand, not the restriction, but the total abolition of vivisection. Some of the leaders even deny the right of the human race to profit by the sufferings of animals. It should be remembered: (1) That those who are in charge of the institutions where vivisection is practised are equally competent to determine the existence of cruelty as those constituting the rank and file of the anti-vivisectionists; (2) that no abuse of vivisection has been shown; (3) that the governing bodies have both the will and the power to put a stop to such abuses should they occur; and (4) that existing statutes furnish sufficient protection against vivisection, as well as against cruelty at large.

In 1874, in England, a Royal Commission was appointed to investigate this subject. The Commission entirely acquitted the English physiologists of the charge of cruelty, and pronounced a merited eulogium upon them. But the action of this Commission was remarkable, for it acquitted the accused, but placed them under police surveillance for life! The law growing out of this work of the Commission was still more remarkable, for it made it penal to torture domestic animals in any way, whereas wild animals might be tortured as much as any one might desire, provided only that it was not done for scientific purposes! The first outbreak of the anti-vivisection movement in this country occurred in New York in 1881, when, under the leadership of Mr. Henry Bergh, an attempt was made to secure a law for the abolishment of vivisection. After the exposure of the garbled evidence upon which this advocacy was based, the legislature refused to pass such a law, and went so far as to furnish distinct protection to the men of science in the legitimate use of vivisection. The President of the Massachusetts Humane Society not long ago called attention to the failure of anti-vivisection movements in various parts of the world, and suggested that the Society should coöperate with the medical profession for the proper restriction of vivisection. Unfortunately the Society has not acted upon this sound advice.

Turning, then, to another aspect of the question, the speaker called attention to the fact that we knew nothing whatever about pain, except that it was a subjective sensation. We were often struck by the different degrees of suffering experienced by different individuals under apparently the same circumstances. There was apparently a rough proportion between the acuteness of pain and the degree of intellectual development. It was entirely impracticable, therefore, to draw reliable conclusions regarding the sensations of the lower animals, based upon a comparison with our own sensations under similar circumstances. All that we know about this is derived from the cries or other external evidence of some condition which the economy repels. Even such highly developed animals as the horse and the dog often furnish evidence that they do not experience pain in the same degree and manner as the human subject. These external evidences of suffering are reflex movements, and it is well known, may take place under partial anesthesia, without the existence of consciousness. The "spasm of agony" of sensational writers is, therefore, better described as a nerve-muscle reaction. Dr. Bowditch suggested a proper definition of pain would be: "Consciousness of the excessive stimulation of a sensory nerve." This definition excludes those cases in which the brain is narcotized, or separated from the rest of the nervous system.

But there still remained, he said, to be considered the question of how far it is the right of one individual to suf fer for another, and how far may future good compensate for present evil. To this he would answer, that we unhesitatingly submit ourselves and those we love to physical suffering, in the hope of future benefit. The law which bids us bear one another's burdens is a beneficent one, and we cannot escape from it if we would. But vivisection involves suffering of a lower animal for the benefit of the whole human race, and for all time. Moreover, physiologists, in their experiments, cause suffering utterly unsignificant when compared to that inflicted upon animals, for little or no cause; so that as far as the charge of cruelty

is concerned, the physiologists may claim exemption on the same ground as the sportsman; and as regards the justification for the infliction of pain, the advantage is in favor of the physiologist. Again, the relations of animals to each other are such as to justify, from a moral point of view, an indictment of cruelty against Nature herself. There is usually less suffering in connection with the animals operated upon or killed in the laboratory than there is in these animals in a state of nature. Aside from a feeling of mercy, the physiologist, for the sake of convenience, uses an anesthetic, in order that the struggling and cries of the animal may not distract his mind from the subject in hand or derange his delicate instruments. It has been calculated by Professor Yeo that seventy-five per cent. of the animals are rendered absolutely unconscious to pain by the giving of an anesthetic, but the mere administration of an anesthetic to an animal is not as an agreeable process as to the human subject. In trifling operations it is much better, probably, for the animal not to give an anesthetic. Of the twenty-five per cent. of operations done without an anesthetic, it is probable that twenty per cent. are about as painful as vaccination, four per cent. as painful as the healing of a wound, and one per cent. as painful as an ordinary surgical operation performed without an anesthetic.

Now, what have we gained from vivisection? The foundation of our science—the discovery of the circulation of the blood—was made possible only by examinations on living animals. The proper mode of applying ligatures to arteries and the antiseptic treatment of wounds have reached their present state of perfection chiefly by experiments on animals. The surgery of the past has been robbed of much horror simply by this introduction of the use of the ligature instead of the use of torturing hot irons. The therapeutic use of antitoxin in diphtheria shows already that the physician has within his grasp the means of successfully treating one of the most dreaded of diseases. Who will dare to say that this boon has been dearly purchased by the lives of a number of guinea-pigs? Commercial experiments illustrating the danger to life of sewage-polluted water have cost many thousand human lives, whereas the knowledge which has enabled us to guard successfully against cholera has cost the lives of a few mice! We should remember the words of Him who said: "Ye are of more value than many sparrows."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 23, 1896, TO JUNE 29, 1896.

Major Daniel M. Appel, Surgeon, is relieved from duty at Fort Porter, New York, and ordered to the new post near Little Rock, Ark., for duty.

Captain Aaron H. Appel, Assistant Surgeon, is relieved from duty as examiner of recruits at Chicago, Ill., and ordered to Fort Porter, New York, for duty.

Leave of absence for one month, to take effect about the 5th proximo, is granted Captain Walter D. McCaw, Assistant Surgeon, Fort Ringgold, Tex.

Leave of absence for two months, to take effect on or about August 1, 1896, is granted Major Louis M. Maus, Surgeon, Fort Sam Houston, Tex.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 30, 1896, TO JULY 6, 1896.

Leave of absence for two months, to take effect on or about July 8, 1896, or as soon thereafter as practicable, is granted Colonel Charles T. Alexander, Assistant Surgeon-General.

Captain William B. Davis, Assistant Surgeon, will, in addition to his present duties, take charge of the Medical Supply Depot in New York City during the absence on leave of Colonel Charles T. Alexander, Assistant Surgeon-General.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 7, 1896, TO JULY 13, 1896.

The extension of leave of absence, on account of sickness, granted Major James C. Worthington, Surgeon, is further extended one month, on account of sickness.

Leave of absence, for two months, to take effect on or about July 15, 1896, is granted Colonel Dallas Bache, Assistant Surgeon-General, Headquarters Department of the Platte.

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JULY 4, 1896.

June 29th.—Surgeon I. G. HENEBERGER, detached from the marine rendezvous New York, and ordered to the hospital Widow's Island.

Passed Assistant Surgeon E. S. BOGERT, ordered to the New York Navy Yard, July 2d.

Passed Assistant Surgeon T. C. CRAIG, detached from the New York Navy Yard, July 2d, and ordered to the marine rendezvous, New York.

July 2d.—Passed Assistant Surgeon W. F. ARNOLD, detached from special duty in China and Japan and ordered to return home.

Assistant Surgeon H. F. PARRISH, ordered to the Naval Laboratory, New York City.

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JULY 11, 1896.

July 7th.—Medical Inspector J. C. WISE, detached from the Washington Navy Yard and ordered as a member of the Board of Inspection and Survey, July 15th.

Medical Inspector R. A. MARMION, detached from the Board of Inspection and Survey, July 15th, and ordered to the Washington Navy Yard.

Passed Assistant Surgeon S. S. WHITE, detached from the Naval Academy and ordered to the "Thetis."

Passed Assistant Surgeon G. A. LUNG, detached from the "Thetis," ordered home, and granted two months' leave.

July 8th.—Surgeon P. A. LOVERING, detached from the New York Naval Hospital and ordered to the "Oregon."

Passed Assistant Surgeon C. H. T. LOWNDES, detached from the Washington Navy Yard and ordered to the Naval Hospital at Philadelphia.

July 10th.—Surgeon C. U. GRAVATT, to Norfolk with draft of men, and then home and three months' leave.

Assistant Surgeon R. G. BRODRICK, to the "Franklin."

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JULY 18, 1896.

July 14th.—Surgeon R. C. PERSONS, orders to duty at Naval Hospital revoked and ordered to continue on present duty.

Passed Assistant Surgeon H. N. T. HARRIS, ordered to the Pensacola Navy Yard.

July 15th.—Surgeon S. H. DICKSON, ordered to the "Texas."

Assistant Surgeon J. M. MOORE, detached from the Naval Hospital, Norfolk, and ordered to the "Texas."

July 17th.—Assistant Surgeon A. FARENHOLT, detached from the "Monterey" and ordered to the Mare Island Hospital, Cal.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

TUBERCULAR PERITONITIS.[1]

BY ROBERT ABBE, M.D.,
OF NEW YORK.

THERE is probably no surgeon of much experience to-day, who has not encountered in his abdominal operations some phase of peritoneal tuberculosis; and, it is fair to say, he has often been confronted with it unexpectedly. The more one studies the subject, however, the more it is cleared of obscurity, and takes its place as an entity to be thought of in all cases of doubtful diagnosis in abdominal enlargements. The sudden invasion of the peritoneal cavity by the tubercle bacillus is announced by signs which have their counterpart in the joints, in the meninges, in the pleura, and in synovial tendon sheaths —and give a diverse series of phenomena.

It has been customary, in writings upon this subject, to adopt a classification dividing tubercular peritonitis according to its gross anatomical appearances, into ascitic, dry, and caseating forms. It gives a somewhat fairer understanding of the subject, however, if we consider the multiform varieties of its exhibition from the standpoint of the bacillus, and observe that each case represents a stage in the life history of the bacillus, and its results. We then see that under the varying conditions we may have: (1) An eruption of miliary tubercles on the peritoneal surface so acute that acute infectious diseases, or even strangulated hernia, have been suspected. Operations have been resorted to, in the hope of relieving obstruction, which had caused vomiting, constipation, distention, and pain. Acute miliary deposit with inflammation and a little serum only were encountered to explain the trouble; or (2) an enormous accumulation of ascitic fluid, with rapid wasting, slight pain, and no fever, has been found to follow a slower deposition of tubercles widely scattered over the peritoneum; or (3) a persistent pain or tenderness of the abdomen, with moderately tympanitic distention and irregular areas of dulness, associated with slight afternoon temperature and loss of appetite or flesh, have been found to indicate diffused tuberculosis of the peritoneal cavity without fluid, but with a varying amount of plastic exudation partially sealing its walls together; or (4) wasting of the body with irregular tympanitic distention, fever, anorexia, and sweats, associated with huge cakes of matted lymph and omentum, or sacculated ascites, or pus, have been found on operation to illustrate the latest steps of tubercle development, with caseating deposits of lymph, purulent degeneration of ascitic fluid and cicatrizing masses of gray miliary deposits; or (5) the mishaps incident to degeneration of caseating patches ulcerating into the bowels, causing fistulæ or extravasations of feces into the peritoneum; or bowel obstruction by lymph adhesions, or bands—these add to the picture of the multiform manifestations of tuberculous peritonitis, once known as *tabes mesenterica*; (6) and finally, a retrograde course in the life of the bacillus and its products may leave an abdominal cavity partly sealed by the atrophied tubercular elements which may give the patient years of comparative health.

The mode of entrance of the bacillus is undoubtedly various in different cases. It is probably less often through circulation in the blood than by direct entrance through perforation of the intestinal wall or transit from the Fallopian tube. Leaving out the cases where miliary tubercles are found on the peritoneum adjacent to the base of a tubercular ulcer of the intestines, or the cases where a perforating appendical ulcer is surrounded by them, or those where the primary deposit is about the tube or ovary, there are still a larger number where no focal deposit suggests the point of entrance, but they are scattered uniformly over the visceral, parietal, and omental peritoneum. These are not uncommon in children, and indeed, are usual in cases with large ascitic collections. It has been thought probable that in such cases milk-food has been the carrier, and it would seem probable that penetration by bacilli of follicles, minutely ulcerated or not, is the most reasonable method of entrance. A case of Bradford's, where the lad had this typical form and was known to have fed on the milk of a tuberculous cow for some weeks prior, is in evidence. It would take but a few cases to establish this view.

As illustrating another method of infection, I would quote a recent case of my own, in a lady who had been losing flesh for half a year, and

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who, though not aware of fever, had been having frequent night sweats. A slowly developing trouble in the appendix region culminated in an acute febrile attack (T. 103½°; P. 130), and local peritonitis, with a mass, which I supposed to be only an ordinary appendical abscess. On operation, the mass was composed of the caput coli, appendix, small intestine, and omentum densely matted, and all studded with miliary tubercles, with a couple of ounces of free ascitic fluid. The appendix had to be dug out forcibly. There was no abscess, but a tubercular ulcer of the mucous membrane of the appendix, which had penetrated all the coats, showed where the bacilli had made entrance.

Vierrordt reports the case of a girl of but 6½ years, with tubercular peritonitis preceded by a purulent vaginal discharge in which tubercle bacilli were repeatedly found, suggesting the vaginal route as possible in children of unclean habits.

Burdon-Sanderson, Sturgis, and Carr, in searching for the starting point of tuberculosis in children, review autopsies of several hundred, and conclude that about one-third die of tuberculosis in some form. Walter Carr shows that in one hundred and twenty autopsies, the enlarged thoracic glands show in two-thirds as the point of entrance, while the mesenterics are involved in one-sixth.

Thus we see that whether the infection gains access by the alimentary or pulmonary route, the bacillus must be early disseminated. That it is possible, however, for it to be a confined and local malady—contrary to Louis' law that "after puberty the lungs are almost always affected when any other organ is involved," is shown by Carr's 120 autopsies, where in 12 it was limited to one organ. In König's report of 2230 *post-mortems* at the Göttingen Pathological Institute, there were 107 of tubercular peritonitis, of which 99 had coexisting phthisis. Eighty had ulceration of the bowels.

That it has been found to be generalized when studied from the autopsy point of view, is not an argument for such cases as come to the surgeon's notice when a recognized local point of entrance may have still confined the disease to that focal area. While studying the curability of the disease, however, we may well keep in mind the fact that though it may be disseminated, the system may yet recover, as after other bacterial infections, and by ridding the abdomen of its nest of infection, the system may be put in an attitude to overcome the rest.

Up to recent years, and even of late, the best clinical observers have held that tubercular peritonitis is incapable of spontaneous cure. It may be fairly said, however, that recovery from chronic peritonitis with ascitis had been heretofore observed, and, with the above dictum in mind, writers have claimed that those could not have been tubercular, else they would not have recovered. This argument in a circle now stands refuted. Bouilard found in extensive search of older literature eighty-two cases of tubercular peritonitis of which twenty recovered. In some cases good health persisted ten to seventeen years after recovery. One man, quoted from Louis, twenty-four years old, had marasmus, pleurisy, and abdominal ascites. Being attacked by Asiatic cholera was nearly purged to death, and then made an excellent recovery.

Vierrordt of Heidelberg, claims much success in curing by medical measures. Among other cases he quotes that of a girl of 6½ years, without lung trouble, who had a purulent vaginitis bearing many tubercle bacilli. She was soon cured of this, but later developed a slight stomach pain, which rapidly increased to great proportions, doubling her up with anguish. She grew pallid, had tympanites with ascites and diarrhea. The dulness increased, with tenderness to pressure and continued intestinal pain. The temperature was sometimes elevated, and as often subnormal. The diagnosis was undoubtedly tubercular peritonitis, but she made a good recovery.

McCall Anderson reports (1894) a boy of nine years, delicate, with persistent cough, and rapid loss of flesh during three weeks. He was admitted to the hospital two weeks after his abdomen had begun to be painful. He had diarrhea, distention with ascites, with dull areas of lymph exudate in the front and sides. A wave of fluid was easily elicited. He had bronchitis (T. 100 to 103°, P. 140), hectic and sweats. His diarrhea was arrested; ice-cloths were applied to the abdomen, giving relief whenever the temperature rose above 100°. He remained in the hospital several months, and made a recovery in every particular.

Comby reports two cases. First, was a child, pale, and with a large, painless belly. The abdomen was like a hemisphere filled with free fluid. Nothing abnormal appeared about the chest, or heart, or urine, to account for the abdominal state. The child had lost a brother with tubercular meningitis, and the parents had phthisis. A purgative, sulphur baths, and milk diet were given. In one week there was amelioration. Calomel purgation was given with improvement, and the child was allowed to go to his parents. One year

and a half later it was brought back in perfect health, with supple abdominal wall and no ascites. In a second case, a woman with vague abdominal pains and a temperature of 101°, showed pulmonary crepitation and dull areas. The abdomen was distended, and showed a caked mass in the peritoneum, with evident peritonitis of a subacute form. Consultations were held, and it seemed proved that she had pleuro-peritoneal tuberculosis. She was given creosote pills and podophyllin purgation, and recovered.

Marfan reports seven cases satisfactorily treated with medicine alone.

Such claims as these, which are scattered here and there through journals, and based on clinical evidence without bacteriological proof, seem to me to be worthy of credence, and I am willing to think there are many mild cases spontaneously cured by medical means. Indeed, it would be presumptuous to claim for surgical measures what we do if the powers of nature are not credited with a large measure of successful effort. The overthrow of the tubercle bacillus in its stronghold in diseased bones, joints, spine, lungs, synovial sheaths, and even the meninges, is to-day so universally recognized that *a priori* we must grant the probability of its conquest in the peritoneum. But the disease has not yet been taken out of the domain of medicine entirely. Since Spencer Wells, in 1862, cured the earliest recognized tubercular peritonitis case, encountered by accident in removing a diseased ovary, and since König advocated, in 1884, the general resort to laparotomy in all cases of tubercular peritonitis after he had cured three cases, there has been a very general resort to this method, and a sustained confidence in its results when applied properly.

The two classes of most value as proof, are those surviving for several years, and those who, having died from other causes, have given opportunity to see that the miliary tubercles present at operation have disappeared or become altered and reduced to innocuousness. In illustration of the latter, a case by Guignabert is of moment. A woman of thirty, with abdominal pains and vomiting, and tumor to the right of the middle of the abdomen, and evident tubercular peritonitis, is reported. On operation yellow serum was evacuated, and tubercles found studding the peritoneum and abdominal walls. The mass constituting the tumor was composed of adherent viscera and mesenteric glands. Antiseptic solution was used to bathe the surface, and she left the hospital cured. Returning in a fortnight for a plegmon of the neck, of which she shortly died, autopsy showed no fluid in the peritoneal cavity. The congested bowels had returned to a normal gray, and it was impossible to find a trace of the many tubercles visible at laporotomy, except at one small spot. The retromesenteric glands were caseating and shrinking. The intestine was not ulcerated. Another case is reported by Osler where Halsted had cured a classic case of tubercular peritonitis existing six months, in a woman of twenty-eight years, by washing and draining. The intestines were matted and tubercular. Councilman had found bacilli. She recovered, and returned to the hospital weeks after with acute pneumonia, of which she died. Autopsy showed some adhesion along the scar, and a few adhesions with the omentum, but none between intestinal coils. Over the peritoneal surface there were some few flat tubercles, mostly near the ileocecal valve. A recent pleurisy and pneumonia were present, but a most critical examination failed to reveal tubercles therein. The peritoneal tubercles were still rich in bacilli, but undergoing fibroid changes. Kümmel quotes several cases where late autopsy showed entire absence of tubercles where they had been seen at operation one or two years previous. In a recently reported case of Dr. Hamill of Philadelphia, a woman of twenty-four had for two years suffered a decline in health so that she was reduced to a condition of exhaustion and emaciation. Examination showed a painful abdomen distended by ascites. The right ovary was enlarged, and tubes and ovaries adherent. Laparotomy in November, 1894, revealed a thickening of peritoneum to four times its normal. A large ascitic collection was evacuated. All the viscera were extensively adherent to each other, and the omentum and all were thickly studded with miliary tubercles. Adhesions were broken up, and thorough irrigation with boiled water was given. She made a rapid convalescence and gained flesh. One year later a ventral hernia called for an operation. The peritoneum was normal in thickness; no ascites had reformed. There were no tubercles on the peritoneum, a very few on the intestines, and more on the ovaries and tubes. These latter were removed. Irrigation and closure without drainage resulted in primary union. The patient made a quick recovery, and was apparently restored to perfect health.

Of the hundreds of cases operated on for every stage of the disease, the recoveries have been estimated at twenty-five to eighty per cent., and of these, the great majority have survived from six months to several years.

After reading the reports of every case of which mention is made in the French, German, and English, I find the points worthy of attention to be, the variety of stages at which the disease has been attacked; the methods of operation; and the theories of curative action. The cases most favorable reported are undoubtedly those where an acute or a subacute inflammation with ascites has been operated on simply by abdominal section, with evacuation and immediate closure. Most operators have added to this the detergent effect of boiled water irrigation or the alterative action of natural salt solution, or the mild antiseptic action of boracic acid, weak carbolic acid, thymol, mild bichlorid of mercury solution, or camphor naphtol, or iodoform, powdered or in emulsion. In no case does there seem to have been any disposition to absorb the antiseptic. In fact, the altered condition of the peritoneum must render it less liable to absorb. Most successful cases have been drained, either by a tube or iodoform wick, or a Mikulicz tamponade, yet evacuation alone is apparently capable of curing, even though immediate suture of the abdomen is done. In the dry form, that is, with notable presence of miliary tubercles, with or without plastic exudate, but no appreciable amount of serum, there would seem to be a call for some specifically acting material to affect the free bacilli, and here most often the use of chemicals has been made. The liberal use of iodoform in glycerin emulsion seems more than justified in the cases reported in the German clinic. The most striking treatment with pure camphor naphtol has been advocated by Guignabert in his thesis, 1894. It is the method of Rendu. After reporting several cases where the camphor naphtol was injected through a cannula to the extent of half an ounce after the ascites had been evacuated, he quotes the case of a woman of thirty, with grave symptoms, and a dry, tubercular peritonitis. A sponge wet with camphor naphtol was brushed over the entire exposed intestine wherever involved, and the abdomen closed. She recovered promptly. After six months she returned with a phlegmon of the neck, of which she died. Autopsy showed an entire disappearance of miliary tubercles and a restoration of inflamed intestines to a healthy gray.

In another case of a boy of fourteen years, with many liters of ascites and miliary tubercles everywhere in the peritoneum. After laparotomy he sponged the affected bowel with camphor naphtol, and had the pleasure of witnessing a perfect recovery, with dry peritoneum months afterward.

In a boy of twelve years whose abdomen contained flocculent fluid, circumscribed and confined by matted intestines and abdominal walls everywhere studded with tubercles, the cavity was washed with camphor naphtol and closed. A complete cure was maintained long afterward. In another patient of twenty-five, whose abdomen was as distended as a seven months' pregnancy, seven quarts of clear fluid were evacuated and ten grams of camphor naphtol injected through the cannula. In a month a noticeable caking had taken place in the abdomen, which softened in another month with retraction of the abdomen. It seemed to follow a course like the absorption of a pleurisy. The patient steadily gained in weight and made a perfect recovery, with no hardness, dulness, or tenderness.

In a girl of sixteen years, with night sweats and ascites, he evacuated six quarts of clear fluid and injected 5 c.cm. of camphor naphthol. No reaction or fever followed. Slight pain and thickening of the omentum occurred. Convalescence was perfect, so that one month later there was no pain, thickening, or ascites. A ginuea-pig inoculated with ten centimeters of this ascitic fluid had rapid tuberculosis, and at autopsy on the twenty-ninth day had tuberculosis of the peritoneum and liver.

Berger reports two cases thus treated with benefit and without accident, though both had phthisis, and succumbed within five months. In advocating camphor naphtol, Guignabert describes it as having the effect of iodoform, without poisonous properties. It is an unctuous, white liquid, made by fusing one part naphtol and two parts camphor—which fuse with heat—and may be filtered and kept stoppered. Being insoluble in water, it is distributed under its own form by peristalsis, and is claimed by M. Perrier to have remarkable antiseptic action, especially antagonistic to tubercular bacillus, as is shown in tubercles of the mouth, pharynx, larynx, bones, joints, and glands. It is slow to be eliminated, slow to be absorbed, and produces no local necrosis of tissue. It seems to be especially worthy of trial in cases where the dry tubercle is exposed on the surface of matted and separated bowel.

Direct medication of the miliary tubercles by camphor naphtol, or by iodoform, dry or in emulsion, represents the greatest proportion of attempts to cure, pointed at the life of the bacillus. Yet the greatest number of cures have been without direct medication. The surgical world has not yet recovered from the surprise that followed Wells' and König's advocacy of simple laparotomy, and we therefore find a considerable pro-

portion of remarkable cases cured after evacuation only by simple incision. Nevertheless, the fact that evacuation alone of the ascitic fluid by trocar has been a lamentable failure, has resulted in the advocacy of irrigation by Thiersch solution, or sterilized water, weak carbolic, or bichlorid solution, or by normal saline solution. Each of these resorts has the same excellent cures to show. Even the ballooning up of the peritoneal cavity by sterilized air after the evacuation of ascites has been advocated by Von Mosetig, and several excellent cures reported. This is well illustrated in a paper by Folet of Lille, one of whose patients was in perfect health eight months later. She was a woman of forty, with a cured pleuro-bronchitis, followed by tubercular peritonitis with grave ascites. The fluid was drained by trocar, and air insufflated into the abdomen until she was greatly distended. The result was entirely benign. The appetite returned, fever left, the air was absorbed, no fluid re-collected, and, except for a remnant of pleuritic trouble, she was cured.

The value of medication, then, must be discounted. Much speculation has filled the literature on the subject as to why cure results. The first theory naturally considered the traumatism in opening the peritoneum as responsible. Then the contact of air with the serous membrane was credited with an unexplained curative action. The formation of adhesions as a protection to the absorbing surface; the specific action of radiated sunlight, which Koch has shown would kill tubercle bacilli; the access of bacterium of putrefaction normal to the air, and which are antagonistic to the tubercle bacillus; the simple diminution of pressure of ascitic fluid favoring recuperative heart and lung action; the vague term psychical influence; the reflex effect of peritoneal operative handling; all have been advocated in many languages, but have failed to give satisfaction.

The theory that is sustained by most facts is that based on the life history of the bacillus; the capacity of the animal economy, not only to suppress the activity of the organism by encapsulating it, but to remove it by absorption. The proper opportunity for conquest is not afforded in the presence of ascitic fluid, which aids as a veritable culture bouillon, and by its fluidity aids dissemination. When, however, the peritoneum has been aroused by congestion, which follows evacuation, and an inflammatory action is set up, engendering cell hyperplasia wherever the irritation of bacilli is felt, the intruder is walled in. Retrograde degeneration soon sets in, and the morbid material is absorbed slowly but surely until as many cases now record, the peritoneum may become normal where a few weeks or months before it was studded with miliary bodies. The same retrograde change seen frequently after laparotomy where disseminated sarcoma or papillomata have been discovered, makes an analogous clinical picture.

König and others accept the idea that fibrous transformation of tubercle is induced by the leucocytosis or hyperplasia following the substitutive and healing inflammation after laparotomy, or, as Roersch put it, the laparotomy does not cure, but only aids nature to bring it about. Some recent experiments by Manniotti and Baciochi on rabbits and dogs, to determine the influence of laparotomy on induced tubercular peritonitis, are interesting. In dogs, a cure always resulted; in rabbits not so, though improvement was common. The tubercles were absorbed and transformed into connective tissue, though some were slow to disappear. Irrigation with sterile water or antiseptic solution have no value in bringing about a cure in experimental cases. Their conclusions are that the inflammatory reaction established, with an increase of absorptive power, is curative. Very recent experiments by Gatti and Vassilevsky, show also retrograde changes by degeneration of epitheloid cells rather than by phagocytosis.

In conclusion, then, we can say, that now, more than at any time in the past, it is the imperative duty of the surgeon to freely evacuate by incision all fluid of a tuberculous peritonitis. In all probability, additional perfection will be obtained by irrigation with normal salt solution, and closure of the abdomen. Where advanced tubercular deposits can be sponged over with camphor naphtol, it is probable some additional good will accrue. The cure in undoubted tubercular cases may be absolute, though remnants of disease are apt to be latent. The purulent form of tubercular peritonitis is amenable to the same treatment. As regards the general disseminated tuberculosis, with tubercular peritonitis, we must, if we read the cases aright, regard that as occasionally capable of cure. Patients in almost moribund condition with extensive ascitic form, have been frequently restored to health. The treatment by puncture may be dismissed as inadequate. The power of the peritoneum to suppress a widespread tuberculous infection cannot be doubted, and its mode of action is through reparative inflammation, embedding the bacilli,

and forcing retrograde metamorphosis. Cure has frequently followed a second laparotomy when the ascites has reaccumulated—which is the exception.

THE RELATIVE IMPORTANCE OF THE STOMACH AND THE OTHER DIGESTIVE ORGANS.

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THE popular estimate of digestion makes it a function of the stomach alone, the mouth, pharynx and esophagus constituting a comminutor and hopper device for supplying the stomach, while the intestine is thought of merely as a sewer. Within comparatively recent times, the medical opinion on this subject has swung to the opposite extreme of regarding the stomach as a reservoir for food, in which maceration and some preliminary digestion are provided for. The development of gastric chemistry on a clinical basis, has caused the pendulum of medical opinion to swing back again almost to the extreme of the old professional and present popular view. The former extreme was due to the existence of speculative philosophy without research on physical and chemical lines, the modern extreme to a pragmatic devotion to technic without sufficient theorizing or assimilation of observed facts. The man who must wash out every stomach and apply the same routine of chemical tests, without due consideration of what physical examination or careful study of history may reveal, is obliged to center the physiology and pathology of digestion in the stomach since the intestine and its tributary glands do not yield themselves so readily to systematic investigation nor to nice discriminations of therapeutics.

Within very recent times, investigators who have been able to combine reasoning with observation, have arrived at a truer conception of the relative importance of the stomach. This conception is not so satisfactory as the sweeping assertion that this organ was the mainstay of nutrition or that it was a mere accessory of digestion, since it is not adapted to unqualified statements and simple classification, nor can it be properly appreciated either by the pure theorizer or by the blind imitator of scientific technic.

The alimentary tract provides doubly for the digestion of the more important foods. Both the saliva and the pancreatic juice deal with starches, both the gastric juice and the pancreatic with proteids, all the secretions which mingle in the intestine aid in emulsifying and digesting fats. The carefulness with which mastication is carried out, the character of food, the various circumstances which tend to delay its passage through the stomach, the avidity with which the blood-vessels absorb water and dissolved solids, temporary abeyance of function, all determine differences in the precise character and the location of the digestive act.

Much attention has been given to the examination of the stomach contents after test meals and much has been learned from this study, but we must bear in mind the danger of generalizing from such observations, since the time and course of gastric digestion vary greatly with the bulk and kind of food ingested. Gastric digestion includes the complete peptonization of some proteid material. According to most writers, very little true peptone is formed in the stomach but the writer has frequently observed a slight precipitate with heat alone, a slight precipitate also with ammonium sulphate and a considerable precipitate with tannin or mercuric chlorid in the absence of dissolved starch. If this does not indicate the formation of true peptone in excess of intermediate products, the writer awaits correction. The relative amount of peptonization which takes place in the stomach as compared with pancreatic digestion in the intestine, varies inversely as the amount of food taken.

The duration of gastric digestion has not the bearing on this question which might be anticipated. Sluggish motility of the gastric wall is almost always complicated with diminished secretory power while a delay on account of a large bulk of food does not allow relatively better digestion. The notion that the stomach empties itself at a definite time after eating has been exploded; it is now known that the passage through the pylorus depends rather on the perfection of mechanical than of chemical digestion and that chyme enters the duodenum in small quantities, at short intervals. Thus, the first chyme that enters the intestine is slightly digested, the last quite thoroughly, and between these first and last consignments from stomach to intestine, the degree of digestion has gradually become more perfect. Most soluble saline constituents of food are absorbed from the stomach but water remains almost unaffected in bulk till the intestine is reached, unless extreme thirst causes unusual activity in the absorptive apparatus of the stomach. This is shown by experiments on animals. For example, a dog's intestine is severed near

the pylorus and the upper end is brought out of the abdominal wound. In this condition, the dog is almost entirely unable to slake his thirst, water swallowed issuing from the bowel, so that the poor beast continues lapping indefinitely. After small and quickly digestible meals, probably nine-tenths of the work of digestion falls on the stomach while, after a hearty mixed meal, containing an abundance of fats and vegetable fiber, it would be nearer the truth to ascribe nine-tenths of the work to the combined intestinal fluid. Such figures are, manifestly, mere approximations, nor would it be possible to imitate the normal processes of digestion by experiments in ventre nor to investigate the digestion of animals without interfering with the same normal processes.

Abandoning, therefore, the attempt to obtain a quantitative statement of the proportionate work of the stomach and pancreas in digesting proteids, we must admit that the stomach ranks in importance, somewhere between the popular belief and the modern skeptical view that it is merely a macerating and predigesting chamber. Aside from proteid digestion, the stomach is the cavity in which—though not by which—cooked starch is transformed into maltose. This change is not usually complete, from the simple fact that insalivation and mastication are rarely properly performed and, from the varying degree of acidity of the gastric juice.

Conflicting tendencies present themselves which render it almost impossible to predict the exact result of ptyalin digestion in the stomach. A light meal offers less resistance than a hearty one, but the hydrochloric acidity develops earlier and reaches a higher degree in the former case, so that there is greater inhibition of ptyalin digestion. It certainly seems that some maltose is absorbed from the stomach but it is well established that the normal completely digested carbohydrate is glucose, formed by the intestinal invertive ferment. Maltose has not been demonstrated in the blood passing to the portal system from the stomach, yet it does not accumuiate in the chyme as we should expect. The saliva, though much less energetic as a diastasic digestant than pancreatic juice, is perfectly competent to digest all the cooked starch taken at a hearty meal. Like the proteid digestion, that of starches in the stomach is necessarily very variable and incapable of quantitative estimation, in general terms.

But, whatever the relative physiological importance of the stomach, it is practically the most important part of the alimentary tract, since it can be most readily investigated and since, through it, must be directed a large share of the treatment of the other digestive organs. This statement must not be understood in the narrow sense that medicines are commonly introduced by way of the stomach. The majority of cases of intestinal indigestion are due largely to the entrance into the duodenum of undigested and irritating chyme and, until we have removed this exciting cause, by aiding gastric digestion, we are practically helpless in our attempts to modify the digestive capability of the intestine. It is true that we can get the local effect of antiseptics, astringents, and cathartics on the intestine but such drugs do not directly aid digestion, in fact many of them hinder it for the time being. Experience teaches that such medication cannot be long continued and that, on the whole, the best treatment available for intestinal disorders is the regulation of gastric digestion.

Of the two large glands contributory to the intestine, the function of the pancreas is quite thoroughly understood, but its functional diseases are unknown to us and, of the organic diseases, it is only rarely that we can recognize carcinoma, cystic degeneration, and lithiasis. The liver, on the other hand, is an organ whose physiology is still disputed or absolutely mysterious, though its gross lesions and even defects of function are fairly demonstrable during life. Here is presented the strange contrast of an organ which we understand in health but scarcely at all in disease and one which we can diagnose and treat with some satisfaction, though ignorant of its value to the body in health. In either case, depletion, stimulation, and other modifications of function are carried out by means of the stomach, by whose condition is gauged the method and intensity of treatment.

A decided difference between gastric and intestinal digestion is that the former normally proceeds with practically no interference from microorganisms, while the latter is always attended by the action of organized ferments and, in the lower bowel, true putrefaction occurs. Moreover, gastric digestion, except by the elaboration of a few organic acids during the preliminary stage of less than an hour, does not develop nor normally allows to be developed substances which are useless to the body. Pancreatic digestion, on the other hand, even if kept artificially free from concomitant bacterial fermentation, produces leucin, tyrosin and other nitrogenous substances, which are essentially excrementitious.

A REVIEW OF THE CAUSES AND TREATMENT OF ABORTION.[1]

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THE premature expulsion of the fetus in the early months of pregnancy is an event of great frequency. The number of fetal lives thus lost is enormous. There are few multiparas who have not aborted. Hager estimates that about one abortion occurs to eight or ten deliveries at term. Hirst estimates one abortion to every four or five deliveries at term. Whitehead has calculated that at least ninety per cent. of all married women, who have lived to the change of life, have aborted. The influence of this incident on the future health of the mother is of great importance. It rarely indeed proves fatal, but it often produces great debility from the profuse loss of blood accompanying it, and it is one of the most prolific causes of nervous and uterine diseases in after life, possibly because the women are more careless during convalescence than after delivery, and the proper involution of the uterus is thus more frequently interfered with.

By the term "abortion," in this paper, I wish to be understood to refer to the expulsion of the ovum before the fourth month.

Among the usual causes of abortion are: (1) Death of the fetus; (2) abnormalities and diseases of the membranes, including the decidua; (3) apoplexies of the ovum; (4) traumatism; (5) diseases of the mother directly affecting the product of conception (as syphilis); (6) The fact of the mother having previously aborted; (7) irritable uterus (the expulsion in such cases results from a trivial cause, as a long walk, purgatives, jolting, congestion of the pelvic organs, chronic constipation, reflex irritation, as from suckling; extraction of a tooth, pruritis, ovarian disease, etc.; these causes are most liable to produce abortion at the menstrual epoch); (8) spasmodic muscular action in the mother, as chorea; less than half the cases going to term, the premature expulsion of the ovum being explained by physical exhaustion, blood stasis and CO_2 in the uterine muscle, stimulating it to contraction, or by choreic movements in the uterus itself; (9) uncontrollable vomiting and coughing; (10) epileptic, hysterical, cholemic, and tetanoid convulsions; (11) poisons of all the infectious fevers; (12) certain local conditions cause abortion, as tubal or ovarian disease, perimetritis and adhesions, fibroids and polyps, uterine displacements, laceration of the cervix in irritable uteri, previous overdistention of the uterus from hydramnion or multiple pregnancies; and finally, as rare causes, might be placed obesity and contagious abortion, the last being really cases of septic infection (Hirst).

The clinical phenomena present hemorrhage, pain, expulsion of some portion of the ovum. All three are rarely typically manifested in every case. Their duration varies from an almost instantaneous act to days or weeks. In *early* abortions, hemorrhage is more pronounced than *pain*, and the blood is extruded in coagula. The appearance of the substance expelled varies with the period of pregnancy and the entirety of the product of conception. The coronal coat may be entire, the decidua alone may surround the embryo, or it may be surrounded by the amnion. Most frequently the decidua vera remains behind, and hence the danger of sepsis.

In regard to the mortality of abortions, out of 926 cases noted by Hirst, there were 13 deaths—a mortality of 1.4 per cent.

The diagnosis of threatened abortion would be made in a case where we had hemorrhage and more or less pain in a patient, with signs of early pregnancy. The diagnosis of inevitable abortion would be made from persistent hemorrhage, dilatation of the os, ovum presenting, considerable pain and effacement of the angle between the upper and lower segments. Exceptionally one or more of these may be present and the case go to term. The diagnosis of incomplete abortion is made by examining carefully the fragments discharged by floating them in water. Here the digital examination will usually find the os patulous and detect shreds of decidua, the placenta, or fetal membranes in the uterine cavity. The diagnosis of complete abortion is made by the uterus being firmly contracted, the os retracted, and examination of the uterine cavity difficult or impossible. Here the diagnosis must depend largely on the *history* of the case, the examination of the discharge, the enlarged uterus, lochial discharge, and finally the disappearance of the presumptive signs of pregnancy, which had previously existed. Inevitably the ovum must be destroyed. Retained fragments may develop into polypi. The dangers to the woman are hemorrhage, particularly the secondary effects, and sepsis.

The preventive treatment includes the causes that may exist in any case. Enjoin rest at the menstrual epoch, and restrain sexual intercourse where there is an irritable uterus. Replace a displaced uterus; repair a lacerated cervix; treat

[1] Read before the Delaware County Medical Society, June 19, 1896.

any inflammatory condition about the uterus. In threatened abortion, the treatment is absolute rest in bed, drugs to diminish nervous sensibility and muscular action, as opium, potassium bromid, and chloral. Opium should be given in full doses, by the mouth, hypodermatically, or by the rectum. The fluid extract of viburnum prunifolium, in dram doses, is very efficient. It may be combined with opium, administering the latter by suppository. In inevitable abortion, the treatment is as follows: If the hemorrhage is profuse before dilatation of the os occurs, control the bleeding by vaginal tampons of antiseptic wool or baked cotton. Remove in eight hours and reapply if required. Often when the first one is removed the ovum is found extruded, when the urgent symptoms may subside (Hirst). The plugging of the vagina may be done in various ways. The tampon may be made of a long strip of aseptic or antiseptic gauze, or of pledgets of cotton (antiseptic absorbent) or wool, or, in the absence of these materials, of any soft fabrics, such as a silk handkerchief, a soft towel, or strips or pieces of sheeting, cheese-cloth, an ordinary roller-bandage, etc. Whatever material is used, it is understood that it must be thoroughly sterilized by boiling, by dry heat, or by steam, or it may be scalded thoroughly in some hot antiseptic solution. If a large number of pieces are used, they should be secured together by a string, so as to facilitate their withdrawal. More accurate tamponing can be done when the tampon is dry than when it is wet. For introduction of the tampon, the patient should be placed across the bed or, better, on a table, in the dorsal or Sims' position, with the hips at the edge of the bed or table. A very copious hot water or hot antiseptic vaginal douche should next be given, after the bladder has been emptied. The tamponing may be done with the aid of a Sims' speculum, if assistance is at hand; if not, then a bivalve speculum may be used, or as some prefer, one or two fingers are introduced into the vagina, and there act as a guide. With dressing forceps one end of the strip of gauze or a pledget of the tamponing material is passed into the vagina along the introduced fingers and is accurately packed by them into, against, and about the os and the cervix. The tamponing should be continued in this way until the vagina has been moderately filled. Moderate doses of the fluid extract of ergot should be administered every two or three hours, together with quinin or strychnia where these are indicated for debility. If there is much pain, five-grain doses of phenacetin will give the patient comfort without interfering with uterine contraction (Etheridge).

In these cases the deciduous membrane in the early months, and the placenta in the later, are apt to remain behind. The best method to employ for their removal is a disputed question. Riviére states in every case, "If there is no complication, do not hasten; let there be no untimely exploration—simply expectation, rest, and antisepsis. If complications occur, the treatment must be active." Hirst[1] teaches the following: "The expectant plan combines the use of ergot, the tampon, and great care to avoid rupturing the membranes. If the abortion be incomplete, rest in bed, small doses of ergot, vaginal and, if possible, intrauterine douches of antiseptic solutions. *At the first sign of sepsis, the uterine cavity should be cleared out.*" The active plan of treatment, which is better, involves the use of the tampon to control bleeding, and the removal of the contents of the uterus by the finger (rendered thoroughly aseptic before using), or, in experienced hands, the curette, after which an intrauterine douche of a two per cent. solution of creolin should be given. If needed, Hager's dilators may be used to stretch a retracted os.

Very little after-treatment is required beyond confinement in bed until involution is complete. When the expectant plan has been followed, antiseptic douches are to be used and the earliest indications of sepsis looked for.

Riviére, in cases of septicemia, when the disease has been early recognized, uses antiseptic vaginal injections, morning and evening, and employs powdered iodoform upon the vulva, and the occlusive dressing with aseptic cotton, secured by a T bandage. If, after careful antisepsis and the free use of quinin, the fever does not abate and chills recur, he again employs the curette. After all cases of curetting, whether digital or instrumental, he injects Churchill's tincture of iodin.

Warmann uses asafetida with good results in "abortio-habitualis." He uses the drug in pill form, commencing with two a day and increasing to ten, subsequently reducing.

The plan advised by ancient writers of employing phlebotomy in cases of threatened abortion has been successfully used by Viscaro. He draws one or two ounces of blood from one of the veins of the hand. He cites a number of cases where the symptoms of abortion have subsided and the pregnancy continue to term.

[1] "Syllabus of Lectures." Edited by Norris.

CLINICAL MEMORANDUM.

CYST OF THE BRAIN IN THE FOOT OF THE LEFT SECOND FRONTAL CONVOLUTION; MOTOR AGRAPHIA (?) FROM INABILITY TO SPELL; EVACUATION OF THE CYST; IMPROVEMENT; TRAUMATIC MENINGEAL HEMORRHAGE TWO MONTHS LATER; SECOND OPERATION; RECOVERY.

By J. T. ESKRIDGE, M.D.,
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MR. W. E. F., white, aged thirty-four, born in Pennsylvania, married, stock raiser by occupation; resident of Colorado nineteen years, first consulted me April 18, 1895. Father is living and well, mother was subject to "sick headache," and died of "brain fever"; two brothers are living and in good health, except that they suffer from "sick headache"; one aunt is also similarly affected. There is no epilepsy, consumption, insanity, or alcoholism in the family.

The patient as a child was strong and rugged. At his twelfth year he suffered from an attack of measles. At the tenth or twelfth year he began to be subject to severe headaches. They would occur every two or three weeks and pass off after several hours' sleep. The attacks seemed to be brought on by exposure, exhaustion, overeating or some indiscretion in diet: The pain came on suddenly, was sharp, dull or aching in character, and located chiefly in the right temporal region. After several hours, the patient would vomit one or more times, fall asleep and awaken free from pain. As maturity was reached the attacks lessened in frequency and severity, and during the last five years he has experienced only a few seizures each year, the number depending apparently upon irregular habits and indiscretions in eating. He has not been addicted to frequent or excessive use of alcohol. During his twenty-second year, subsequent to exposure to cold, he suffered from severe pain in the left ear. Ten days after the pain commenced, a purulent discharge began from the external auditory meatus of this ear, and continued for three weeks. Six years later he had an attack of la grippe, which was followed by a purulent discharge from the same ear, that ceased after two weeks. Since then his hearing has been lessened in the left ear, and he occasionally experiences a throbbing sensation in it. Five years ago he contracted syphilis, but no secondary symptoms followed. The patient has suffered from indigestion for some years. The symptoms of this have been heartburn, pyrosis, eructations of gas, and distress after eating.

In 1892, one year after his marriage, his wife observed that he was becoming very jealous of her. He would become enraged if he saw her talking to her own brother. After his explosive fits of jealousy, for which there seemed to be no cause, or even the suspicion of one, he would tell his wife that he did not mean what he had said. His jealousy concerning his wife increased, and sometime in 1893, while she was lying in bed with him one night, he tried to choke her. She broke away from him and asked him what he meant. He smiled and said he was only playing. She at that time noticed no other evidence of mental deterioration, except that he was becoming more irritable. In September, 1893, he first experienced difficulty in writing. Before this he had been a good and rapid penman, having served as bill clerk in the house of representatives during two sessions of the State legislalature. The difficulty in writing consisted in misspelling and in transposing the letters of the words. The disturbance soon became so great that it was difficult to make any sense out of what he had written. He had been before his illness fairly good in spelling, but at times was careless. Scarcely a word of any length was spelled correctly a year after he began to experience difficulty in writing. He soon ceased to write as the effort was tiresome to him and he had to spend an hour or more in trying to write a page of note paper. In February, 1894, he suffered an entire night from severe, sharp, shooting pains in the chest in the region of the heart. The attack gradually subsided the next day, but he was left weak and very nervous. He has not had so severe an attack of this since the first one, but every few weeks, since the occurrence of the first, he has experienced sharp and shooting pains in the cardiac region.

In July, 1894, the patient began to suffer from pain in the frontal region. In character this resembled the cardiac pain which he had experienced some six months before. After July, 1894, the head pain became quite frequent, occurring every two or three weeks, sometimes every few days. The pain lasted for a few hours and disappeared after a few hours' sleep. He did not feel nauseated at the time, nor did he vomit. During the paroxysm he frequently found some relief on closing his right eye.

Three months before consulting me, or about the middle of January, 1895, while the patient was conversing with his wife, he suddenly found himself unable to talk for fifteen minutes. He could not utter a single articulate sound. He says that his mind was perfectly clear at the time, and he thinks that he could have written what he wanted to say, had he not been so nervous. He, however, made no attempt to write. Gradually his power of articulation returned and within fifteen minutes after he was first able to speak, he could call his wife's name, and frame a few sentences connectedly. An hour later all speech disturbance had passed away. Since January the patient on four or five occasions has experienced difficulty in speech which came on suddenly, but at no time has there been a total inability to speak, as in the first attack.

Between the seizures of speech difficulty the patient often shows hesitancy in speaking, but, as a rule, he could talk quite well. He says that since January he has had difficulty in remembering proper names, and occasionally has used a wrong word when he knew well the word that he wanted to employ.

Six or seven weeks ago he experienced a peculiar visual disturbance. He says it appeared to him as though he was looking into a tunnel. Outside of his central vision everything seemed hazy and indistinct. His expression was: "It looked to me as though my central vision was surrounded by clouds of steam." The defect in vision lasted for about half an hour, and it has recurred twice since. Yesterday the patient experienced some temporary blurring of vision. It came on suddenly and disappeared rapidly after it had lasted for a few minutes. The difficulty in writing, which was first observed about eighteen months ago, has continued; and this morning he suffered from the frontal pain for one hour.

Examination April 19, 1895.—Physically the patient looks, and says he feels, strong and well. He is unusually well developed and strong. He experiences much less trouble with his stomach than he formerly did. Gait perfect, no ataxia, no paresis, or paralysis of any muscles. Dyn. R., 236; L., 210. All the deep reflexes about normal except that the knee-jerks seem a little lessened; the reflexes of the right arm are all a little greater than in the left. All the superficial reflexes are present except the cremaster, and their absence can be accounted for by the presence of a double inguinal hernia, which has existed for a number of years. A fine tremor at times is observed in both arms. It is said to come on after exertion and is more marked in the left than in the right arm. All general sensory phenomena are normal. Taste and smell are present and equal. Hearing: Watch, R., 10/12; L., 9/12. Tuning fork is heard a little more distinctly in the left ear. Vision in each eye, 6/9; fields normal, both for light and color; pupils normal in size and react readily to light and accommodation. External ocular muscles act well. Fundi and disks show no pathological change. Slight refractive error. Mental action slow with lessened power of mental concentration, sustained attention, and memory. There is no form of visual or auditory defect in speech. The receptive centers concerned in speech memory seem to act normally. On testing the motor or emissive side of speech, it is found that he can speak voluntarily, but that speech is a little slow, and he occasionally hesitates in pronouncing long words. He repeats words after another quite readily, except that he is slow and deliberate in articulation, and sometimes he hesitates before trying to utter some words. It is observed that the greater the effort he makes in trying to utter a word, the more nearly he succeeds. If the patient makes a mistake he at once recognizes it and usually corrects it. He has no difficulty in thinking in speech. I am unable to discover any special difficulty in the use of any part of speech. He understands and uses gesture expressions in speech. On testing his ability to write a peculiar defect is found. He writes his name perfectly and copies script and printing into script with scarcely a mistake. In writing voluntarily he transposes the letters of a word, adds and omits letters, so that what he writes makes very little sense unless one knows what he is trying to say. On requesting him to spell words it is found that he spells the words just as he writes them. It seems to matter but little how he spells a word, he usually pronounces it correctly. The thoracic and abdominal organs appear healthy.

The pain of which the patient had complained during the last few months had been referred to the right frontal region, but the more reliable localizing symptom, the disturbance in speech, especially inability to write, the so-called agraphia of the motor variety, pointed to the left frontal region as the seat of some organic brain disease. The opinion was expressed that a tumor was forming in the motor speech center, and affecting more particularly the foot of the second frontal convolution. He was placed upon increasing doses of potassium iodid, requested to remain in town and report once or twice each week. He returned home, a distance of about fifty miles, a day or two later, took the medicine irregularly for a short time, but not improving, he soon discontinued its use entirely. I did not hear from him again until October 24, 1895, about six months after he had first consulted me.

During these months he suffered nearly constantly from dull heavy pain on both sides of the head in the frontal region. He also experienced about twice a week severe paroxysms of acute pain. During these attacks the pain was located in the frontal region, but always worse on the left side, and most intense in the anterior and upper portion of the temporal fossa. The paroxysms usually occurred during the latter part of the day or early evening, and passed away after sleep, as before noted. Their occurrence seemed to be due to exposure to the sun's rays, over exertion, or excitement. Occasionally an attack would be mild, but the next one would be very severe. During the time the pain was most severe, the scalp over the anterior portion of the head, but more especially over the left side, would become sensitive to pressure. His speech disturbance increased, and he became more irritable and forgetful.

On October 24, 1895, I was hastily summoned to see him at his home, in consultation. In addition to the facts already stated, I learned from his wife that his eyes had not troubled him much since I was consulted, except that occasionally the peripheral fields of vision would become blurred for a few minutes. About May 15, 1895, she observed that her husband did not walk as well as formerly, and six weeks ago he manifested a tendency to go to the left in walking, and would frequently trip because his feet were not raised sufficiently high. He had not been able to dance as well as formerly. There had been for sometime an awkward movement of his hands, and in reaching after things his right hand would close before the objects that he intended to grasp were approached. The patient had become quite nervous, and his power of mental concentration and sustained attention were much lessened. His memory for recent events was very poor, but for those of early life it was unimpaired. He had lost considerable in weight. On two occasions when he was suffering from severe headache, he had projectile

vomiting, and seemed to be almost unconscious for several hours each time. Six days before I was summoned, he began to suffer from a paroxysm of severe headache. After it had lasted several hours, he lost his power of speech for two or three days. He seemed in a semi-conscious condition, lay in bed and took little notice of things if not disturbed. He could be aroused and his attention engaged for a short time, but he seemed dazed. He complained of his right arm feeling numb as he began to regain consciousness. When I saw him there was no paresis or paralysis of any muscles; the eyes showed no change in central vision, fields, fundi, or disks; and all forms of general or special sensations, so far as I was able to determine, were normal.[1] He seemed weak and dazed, and apparently not completely realizing what was going on around him. He made no complaint of anything when left alone, but when I asked him is he had any pain he said "yes," and placed his hand on the left side of the forehead. On percussing the head on both sides, I found an area of tenderness about an inch and a half in diameter, situated on the left side just above the speech center of Broca. He was disinclined to talk, and no attempt was made to test his powers of speech at this time. At my request he was transferred to Denver the same day and placed in St. Luke's Hospital. After putting the patient in the Hospital, he was tenderly nursed, careful and repeated bilateral axillary temperature observations were made, and a record was kept of everything likely to throw any light on the case. The temperature was about equal in each axilla, and usually about .5° below normal. The pulse varied from 72 to 82; respiration from 16 to 24, but it usually remained at about 18.

October 27th: His gait is firm, but there is a little tendency for the body to reel on first closing his eyes while standing, but this passes away in a few seconds. The right hand, while not distinctly ataxic, is used more awkwardly than the left. Dyn. R., 224; L., 200. All leg and arm muscles are strong. A slight tremor is observed in the right hand when he grasps anything very firmly. It is thought that the right thumb and index finger are flexed and extended a little more slowly and awkwardly than the left. He can flex and extend the left index finger without allowing the hand to move at the wrist, but in flexing and extending the right index finger the hand invariably moves at the wrist, although he tries to prevent it. The muscles of the right side of the face appear a little weaker than the left, but the difference is very slight. The tongue deviates slightly to the right in extreme protrusion. There is no wasting of any muscles. Both knee-jerks are a little increased over the normal, the right more than the left, and are decided on reinforcing. Ankle-clonus absent. Tendo-Achillis, R., decided; L., slight. Plantar and cremaster reflexes are absent. Lower abdominal, present; epigastric, R., absent; L., present. The deep reflexes of the arms are increased. There is no trouble with the sphincters of the bladder or bowel. General sensory phenomena are nearly normal. On the lips and tongue on the right side he readily feels the contact of a substance, but two points of the esthesiometer are not differentiated at twice the normal distance. He is unable to localize a substance in gentle contact with the right hand as definitely and quickly as he can with the left. Smell and taste are acute on both sides. Hearing R., ⅗; L., ¼. The tuning fork is heard better in the right ear, even when the left is closed. Central vision, fields, for both light and color, fundi and disks normal. There is an area about one and a half inches in diameter over the left frontal region, in which percussion and firm pressure cause him to wince from pain. The lower border of this area is bounded below by the Sylvian line, posteriorly by the ariculo-bregmatic line, and anteriorly by a vertical line extending upward from the external angular process of the frontal bone. No change in the percussion note is detected over the sensitive area. There is no tenderness over the corresponding portion on the right side of the head. His mind acts slowly, but he reasons fairly well and his conclusions are usually accurate. He laughs, jokes, and seems contented.

On making a systematic examination into the condition of his speech defect, no auditory or visual speech disturbance is observed. There seems to be no form of sensory aphasia. His answers are slow and he has difficulty in selecting his words, but he almost invariably gets the right one. He frequently omits the last syllable of a word, and sometimes one or more words of a sentence. He has no difficulty in thinking in speech. So far as speech-utterance is concerned, there is a slowness in selecting a word, a hesitancy in uttering it after it has been selected, and some difficulty in pronouncing long and difficult words. He repeats simple words after another quite rapidly and without the least hesitation, but if he has to select these same words in conversation, the task is laborious and is performed slowly. He reads aloud writing and printing quite readily, but not infrequently omits and miscalls words. He says that he has no difficulty in understanding what he reads. Writing is the most difficult task for him to perform. He writes his name slowly and distinctly, but it is not written in the bold, easy hand in which he formerly wrote it. His writing seems so remarkable that I determined to study its defects thoroughly. A business letter written by the patient in March, 1894, was written in a distinct and easy hand, although this was written six months after he first experienced difficulty in writing. There were no errors in spelling, and the letter was connected throughout. On obtaining short letters that he had written to his wife during the six months previous to October, 1895, while he was in Denver or different portions of the State, attending to business, I find that, although nearly every letter was well-formed, the spelling was so bad, so many letters were omitted or added, while others were transposed, that I am unable to read his writing. On asking him to read these letters, he reads portions of them, but supplies words. One curious fact is that, no matter how awkwardly a word is spelled, he usually pronounces it according to what he had meant to write. I notice that to few of the letters that he had written during the past six months had he attached his

[1] At first I thought that tactile sensation was lessened over the right hand, but the mental impairment of the patient was too great to enable me to determine this point satisfactorily.

name. This seems strange, as he can write his signature without much difficulty. In writing simple words, such as "dog," "cow," "hog," at dictation, he frequently transposes some of the letters, and is as long in writing a single letter as a child is when it is first learning to write. He can write voluntarily, but it requires about two hours for him to write five or six lines. He can read much of what he has written, but miscalls words, inserts some, and leaves out others. When he makes a mistake in writing he sometimes recognizes it and will try to correct it, but he frequently makes a greater mistake in trying to correct one. At other times he is either indifferent to his mistakes or does not perceive them. The effort of writing is very exhausting on him. He can copy fairly well, transcribing both printing and writing into script. On getting him to spell a word aloud, he always spells it just as he writes it, although in either case he pronounces it correctly.

October 28th: On his admission into the Hospital, the 24th inst., blue ointment was ordered rubbed in night and morning, and he was given potassium iodid in increasing doses. He is much brighter and his headache is much less. It has been observed that he magnifies trifles and delights in talking about little things that relate to himself. He talks much better.

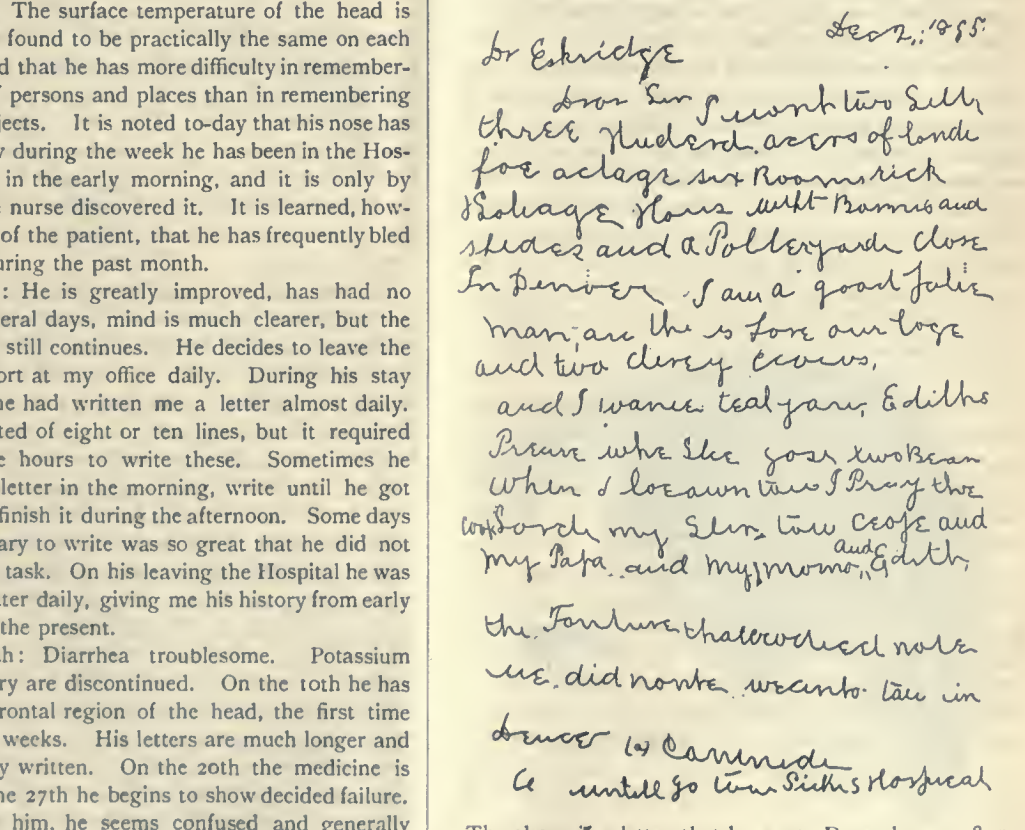
October 30th: The surface temperature of the head is registered and is found to be practically the same on each side. It is found that he has more difficulty in remembering the names of persons and places than in remembering the names of objects. It is noted to-day that his nose has bled almost daily during the week he has been in the Hospital. It occurs in the early morning, and it is only by accident that the nurse discovered it. It is learned, however, on inquiry of the patient, that he has frequently bled from the nose during the past month.

November 3d: He is greatly improved, has had no headache for several days, mind is much clearer, but the defect in writing still continues. He decides to leave the hospital and report at my office daily. During his stay in the Hospital he had written me a letter almost daily. It usually consisted of eight or ten lines, but it required him two or three hours to write these. Sometimes he would begin his letter in the morning, write until he got tired, stop, and finish it during the afternoon. Some days the effort necessary to write was so great that he did not feel equal to the task. On his leaving the Hospital he was to write me a letter daily, giving me his history from early childhood up to the present.

November 7th: Diarrhea troublesome. Potassium iodid and mercury are discontinued. On the 10th he has pain in the left frontal region of the head, the first time for nearly two weeks. His letters are much longer and more connectedly written. On the 20th the medicine is resumed. By the 27th he begins to show decided failure. His head pains him, he seems confused and generally discouraged.

November 28th: He says that he was unable to write me his usual letter this morning, on account of headache and dizziness. The tongue deviates decidedly to the right, but there is no apparent paresis of the right side of the face. It is almost impossible to understand him, as he utters words so indistinctly. With an effort he can read aloud so as to be understood, but he substitutes, transposes, and omits so many words that what he reads does not make much sense. He says that he is nearly crazed with pain. Both optic nerves are pale, or almost white, and apparently show beginning atrophy, but vision and fields remain nearly normal. He is given something to relieve his pain and told to keep quiet for the day.

December 1st: He looks pale and distressed. It is impossible at first to quiet him. He wrings his hands and groans as if in great mental or physical distress. After awhile he tells me that he had not slept any the previous night, and had cried most of the time. He says that his distress was not on account of pain, but because he had revealed to me in his letter of the day before the password of the Woodman's Lodge, and he is fearful lest he will be placed in the penitentiary for it. It is some time before I can convince him that he has written nothing of the sort, and this can be done only by showing him two or three of his previous letters. He then comes to the conclusion that he must have been insane all night. On my advising an immediate operation for the relief of his brain trouble, he readily consents, and seems happy in the prospect of relief.



The above is a letter that he wrote December 2, 1895, three days before the operation. It seems to admit of the following liberal translation:

"December 2, 1895.

"Dr. Eskridge:

"Dear Sir: I want to sell three hundred acres of land for a

house, a six-room brick cottage, with barn, sheds, and poultry-yard, close to Denver. I am a good poultryman. We have four cows, two large and two small dairy cows. I want to tell you Edith's prayer, which she says when she goes to bed, 'When I lay me down to sleep, I pray the Lord my soul to keep and my papa and my mamma, and Edith and whom I love as my own soul.' The furniture that we do not want in Denver I wish to sell. Continued. Until I go to St. Luke's Hospital."

FIRST OPERATION AND SURGICAL ASPECT OF THE CASE.

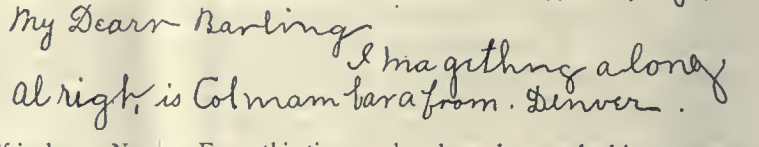
BY DR. PARKHILL.

Operation, December 5, 1895, 11 A.M. The usual methods had been observed in preparing the scalp for operation on the previous day, including the outlining of measurements in nitrate of silver. At the time of the operation these measurements were transferred to the skull by means of the Parkhill skull-marker. A semi-circular flap with the base downward was raised and a three-fourth inch button of bone was removed from over the region of the foot of the second left frontal convolution. This opening was enlarged with the rongeur until it had a diameter of about one and a half inches. No pulsation was preceptible either to sight or touch and the dura bulged irregularly into the wound. Across the middle of the exposed surface of the dura there was a constricted band-like appearance running from before backward, which held the dura below the surrounding portion of the exposed membrane. On endavoring to relieve the constriction by cutting through the dura at this point, which was found to be very thick, a straw colored fluid spurted out several inches high, apparently from the substance of the brain. The opening through which the fluid escaped was now enlarged, and about an ounce of fluid in all was found. The cyst which had contained the fluid was situated immediately below the cortex and extended into the brain substance to the depth of half an inch or more. The globular portion of the cyst lay within the white substance of the brain, the constricted neck-like portion in the cortical, and its external boundary was formed by the membranes of the brain. The fluid was watery, straw colored and contained no pus- or tumor-cells. A small rubber drainage-tube was inserted into the cyst cavity and brought out through the middle of the scalp flap. The dura was sutured with catgut, the scalp with silkworm-gut, and the ordinary antiseptic dressing was applied. But little shock resulted from the operation, and the recovery from a surgical standpoint was perfect. On the ninth day the head was dressed and the cavity was apparently almost obliterated. On December 15th, the scalp was raised and gold foil placed between it and the dura, there was practically no reaction from this and his recovery was uneventful.

CONTINUATION OF THE RECORD.

BY DR. ESKRIDGE.

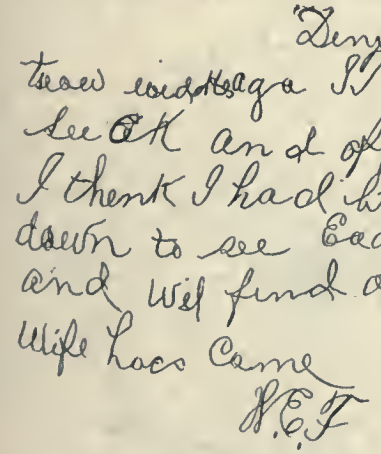
December 5, 11 P.M., about eleven hours after the operation, he is feeling quite comfortable, except a little nauseated. The right lower side of the face is partially paralyzed and the tongue deviates to the right in extreme protrusion. Motor disturbance in speech very marked, but he is still able to think in words and utter a few voluntarily. He can repeat simple words after another. Two days after the operation, the paresis of the right side of the face had passed away, and he could articulate more distinctly than he could immediately before the operation was performed. December 8th. He is still improving and utters long and difficult words quite well. On the 10th he attempted to write, and while he formed his letters distinctly, no sense could be made of what he had written because of the bad spelling. On the 11th his attempt at writing was still a failure. On the 12th he spent about an hour in writing his wife the following:


Denver Colo
Dec. 12, 1895—
My Dearr Darling
I ma getting along
Al right, is Colmam bara from. Denver.

From this time on he showed a gradual improvement in his writing. On December 30th, he copied several lines of writing, and a paragraph from a newspaper, an extract from a political speech, all into script with scarcely a mistake. On the 31st he wrote me a letter of fourteen lines. It was written connectedly, and is easily read, but there are several gross mistakes in spelling, and a few letters are transposed. Every letter is well formed. During January he wrote me a letter about every second day. The letters are written connectedly, and are comparatively easily read.

February 1st, he struck his head against a wooden box, the sharp corner of the box striking the head at the point where the bone had been removed. The next day he began to suffer from frontal headache, felt dizzy, was nauseated, and vomited. On the 3d and 4th he was quite drowsy, and complained of a numb sensation in the right hand and arm. The hand felt so lifeless that he could not find his pocket with it, unassisted by vision. His vision soon began to fail, he lost flesh, and suffered almost constantly from headache, nausea, and vomiting. It was observed that he was extremely forgetful, and acted foolishly at times. On the 12th he came to Denver and I made a careful examination into his condition. He had lost considerable flesh, looked haggard and depressed. He was suffering greatly from pain in the left frontal region of the head. He was weak, but there was no paralysis of any muscles. The only change in the deep reflexes was an increase of those of the arms. Nearly all the superficial reflexes were absent. All general sensory phenomena normal, except localization and muscular senses. Localization was considerably lessened in the right hand and slightly in the left. Muscular sense was lessened in the arms and hands, but very much greater on the right side than on the left. His mind was much confused, and he did not seem to be able think clearly or

connectedly. Hearing, smell, and taste appeared nearly normal. Central vision, with the right eye, was 4/6; left, counts fingers at eight feet. It was impossible satisfactorily to test the fields on account of his mental confusion. There was well-marked atrophy of each optic nerve, much more pronounced in the left eye than in the right. The arteries of the left disk were very small, but those of the right were nearly normal in size. The letter that he wrote me on February 4th, three days after the injury, did not contain a legible word. A few letters were well formed, but most of them were meaningless scrawls. Meningeal hemorrhage was suspected, and an immediate operation for the relief of pressure on the brain was urged. He was placed in St. Luke's Hospital and operated upon by Dr. Parkhill the following day. On completing the examination on February 12th, I requested him to write me a short letter, and to my surprise he wrote more connectedly, and with fewer errors, than he had been able to do before the first operation. It is given here:



In this letter he tried to say that he was taken ill two weeks ago on Wednesday, "and I was awful sick. I think I had better go down to see Ed Lewis and will find out if my wife has come."

Most of the letters are well formed, and his own name is written in a bold hand, but only the initial letters of his signature are given for obvious reasons.

SECOND OPERATION.

By Dr. Parkhill.

On February 13th, it became necessary to operate upon him again. The preparation was the same as for the preceeding operation, excepting only the outlining of the scalp. On dissecting up the former flap the gold foil was found in position, and it had perfectly prevented the formation of adhesions between the scalp and the dura. Therewas no pulsation. On opening the dura, at the seat of the former cyst, the brain substance had nearly a normal appearance.

The opening in the skull was then enlarged upward and forward. When a half inch of the bone had been taken away, and the dura opened correspondingly, it became apparent that there was a cyst, or membranous-like substance, under the dura. The opening in the skull was further enlarged upward and forward, until it had a diameter approximately of 2½ inches, and the dura incised accordingly. This did not reach the limits of the false cyst. It had a muddy-yellowish appearance and distinctly fluctuated on palpation. The trocar and cannula were passed into it, and there was withdrawn about half an ounce of sero-sanguineous fluid. The cyst was then freely opened with a knife and, upon exploration, it was found to contain quite a quantity of blood clots, perhaps one ounce. It was apparently a closed sac. I then began the dissection of the sac from its seat, by means of the fingers and forceps, and found it extended almost completely over the frontal lobe, reaching down as far as the floor of the anterior fossa of the skull, and dipping into the anterior extension of the middle fossa in the region of the fissure of Sylvius. Internally, it was attached to the falx cerebri. It extended backward over the Rolandic region and the parietal lobe as far as I could reach with the finger and forceps. It was friable, and complete dissection was made only with the greatest possible care. When this was removed, the cortex at its site appeared flattened and depressed to an extent of about half an inch, the brain did not expand after the removal of the cyst-like membrane.

Considerable capillary hemorrhage was encountered during the removal of the false cyst, but this was readily controlled by means of gauze packing and pressure. The cavity was drained, the dura sutured, and gold foil was placed over the dura, leaving only a small opening for the drainage-tube which was brought out through the scalp. The scalp was then replaced and the ordinary dressing applied. Very decided shock followed this operation for the first few hours, but active stimulation overcame this and his progress toward a surgical recovery was uninterrupted. Apparently, however, the brain never regained its normal dimensions, as a decided depression remains at the site of the operation to this day.

CONCLUSION OF THE RECORD WITH REMARKS.

By Dr. Eskridge.

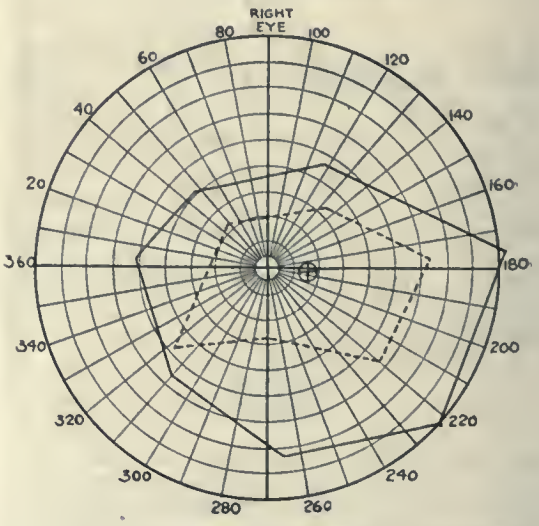
After the second operation he had five or six convul-

The light circle represents the size of the opening in the skull after the second operation. The dark-shaded area near the anterior border of the circle indicates the extent of the opening made at the first operation. About the center of the dark-shaded area the cyst was found.

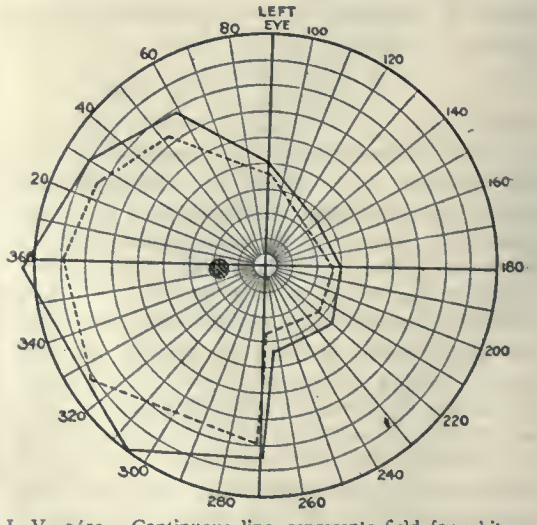
sions, all beginning in the right hand and most of them limited to the right hand, arm, and face, the right leg being involved only on one or two occasions. The left side was not affected. These convulsions began two or three days after the operation, and one and sometimes two occurred on the same day. With the exception of these attacks little of interest from a neurological point was observed until March 6th, nearly four weeks after the operation, when he was able to resume his letter-writing. On that day he spent nearly an hour in trying to write me a letter. The result was: "Elbert, Colo., 6, 1896. My Dear. I Sind." All the letters were well formed. During the afternoon of the same day he wrote me six lines, but with the exception of my name, not a single word is legible, although all the letters are well formed. He had considerable difficulty in articulation at this time, but he seemed to be able to think in speech, and slowly repeat simple words after another. About this time he manifested almost an insane jealousy of every one who spoke to his wife. Although he wrote me a letter almost daily, it was not until the 14th of March that a single legible word was found in them, if the headings of the letters are excepted. From this time on he showed considerable improvement in his writing and speaking. It became evident as time wore on that he was partially demented.

April 14, 1896: There was a slight uncertainty of gait, especially when the eyes were closed, with a tendency to walk to one side, sometimes to the left, at other times to the right. There was slight ataxia in the arms; none in trunk muscles. No paresis or paralysis of any muscles. Dyn. R., 190; L., 184; a decided improvement since the last operation. Knee-jerks, R., about normal; L., decidedly lessened; ankle-clonus absent. Plantar reflexes, R., absent; L., slight. Tendo-Achillis, R., present; L., absent. Deep reflexes of arms slightly increased, a little more on the right side than on the left. All general sensory phenomena normal. Muscular and localization sensations, which had been deficient in the right hand and arm before the second operation, were apparently as good as in a healthy person. Hearing, taste, and smell, presented no points of interest. Eyes, R., counts fingers at eight feet; L., counts fingers at two feet. Roughly testing fields, those of the right eye for objects seemed fairly good, but lessened for color, especially for red, etc. The fields of the left eye were all abolished except in the lower quadrant of the temporal side. The pupils reacted to light and accommodation and all the external ocular muscles were normal. Both disks presented whitish atrophy. The capillaries had disappeared, and both arteries and veins were less than the normal size, the arteries being exceedingly small. It should be noted that at no time had the disks presented an edematous appearance. On making a systematic examination into the condition of his speech no sensory defect was found. He could articulate quite distinctly, and seemed to find little difficulty in pronouncing long and hard words after another. He could read nothing except what was written and printed in very large letters, as his vision was so poor. In reading he would still transpose and substitute, and not infrequently omit words. He could converse fairly well, and experienced no difficulty in repeating words and short sentences after another. He could write voluntarily, but transposed, omitted, and added letters, so it was not easy to make much sense out of what he had written. He invariably wrote as he spelled and *vice versa*, but he pronounced the words correctly, no matter what mistakes he had made in writing or spelling, He could copy well, transcribing both printing and writing into script. He evinced no difficulty in thinking in speech. The only defect in speech detected was that observed on testing his writing and spelling. The primary trouble with his speech seemed his inability to spell. He copied quite well and could write correctly if the words were spelled slowly for him. Although considerable time was consumed in making a complete and systematic examination of his speech defect, only those results that showed deviation from the normal are given here.

On April 23, 1896, Dr. W. C. Bane kindly made drawings of his fields. They were as appear below:



R. V., 3/50. Continuous line represents field for white and blue, dotted line that for red.



L. V., 2/50. Continuous line represents field for white and blue, dotted line that for red.

The case reported at considerable length in this paper presents many points of interest. The first operation was performed December 5, 1895. For about two years prior to this date he had shown difficulty in writing, which, on carefully studying, seems to be due to inability to arrange the letters so that they would appear in the regular order in which common usage has assigned them. At the same time he omitted letters and substituted others. It would appear that his speech defect was an inability to spell rather than an inability to write, as he could copy both printing and writing with scarcely a mistake, transcribing both into script. He copied much more rapidly than he could write voluntarily, but he wrote at dictation just as slowly as he wrote voluntarily, except when the words were spelled for him. If a word was spelled for him he wrote it readily and correctly. Further, it should be noted, that he formed his letters well, except when he was suffering severely from headache, or from other causes.

The first operation revealed no pathological condition beyond a cyst in the foot of the second left frontal convolution. He improved rapidly after the immediate effects of this operation had passed away, and his wife wrote me that her husband improved in every way; he seemed brighter, stronger, and happier than he had been for a long time. He tried to do hard work on a ranch which necessitated lifting heavy weights. This proved to be too much for him as his stomach began to trouble him, but no brain symptoms manifested themselves until he injured his head by striking the unprotected brain against the sharp corner of a box. Then all the symptoms of compression of the brain from meningeal hemorrhage became apparent. The mental failure indicated an extensive lesion.

At the second operation which was performed February 13, 1896, the membrane-like substance, by ocular inspection, appeared so well organized, firm and strong that it was thought probable that a more extensive lesion had existed at the time of the first operation than had been detected and removed. Every portion of the material removed at the second operation was preserved and hardened in Müller's fluid for careful microscopical examination. Dr. E. R. Axtell, pathologist to the Hospital, has just completed the examination and reports as follows:

"May 8, 1896.

"The examination of the logwood-stained sections of the membrane, removed from the cranial cavity of W. E. F., reveals nothing but a mass of small, round cells held together by an intercellular substance and by strings of fibrin. In no section do I find any capillaries. The mass presents no capsule, no trabeculæ of connective tissue. Nowhere are there any areas of caseation.

"The pathologic diagnosis is inflammatory lymph."

The above report of the pathologist seems to establish the fact that the morbid condition found at the second operation was recent and probably dated from the receipt of the blow to the brain, thirteen days before. Had it not been for this untoward accident the patient might have made a complete recovery.

Graphic Center.—The motor center for writing has been supposed by some to be located in the foot of the second frontal convolution. In this connection Mills[1] says: "Destruction of this region, which is just in advance of the area for the movements of the fingers, hand, and other parts concerned in writing, it is supposed, would cause a true agraphia, although no clinico-pathological case fully corroberative of this state has been put on record."

As has been observed we may learn to write with a pen or pencil held between the teeth, with the fingers, or with the toes. It is very improbable that the same center would serve to guide the movements of the head, hand, or foot in writing. The function of Broca's center, seems to be to arrange the words for speech utterance. May there not be a cortical center, the function of which is to register the memory of the arrangements of letters for the spelling of words? This is a process that is gradually and laboriously learned, and there must be some portion of the brain in which the memory pictures of the arrangement of letters in the spelling of words are registered. When the loss of ability to write intelligently depends upon the loss of the ability to spell, as shown in the case just reported, in which the patient could copy correctly and write well when the words were spelled for him, the agraphia is secondary and the fault in spelling the primary symptom.

MEDICAL PROGRESS.

The Pathology of Meat-Poisoning.—As the result of an investigation into an epidemic of meat-poisoning due to the use of contaminated ham Van Ermengem (*Centralblatt für Bakteriologie, Parasitenkunde, und Infektionskrankheiten*, B. xix, No. 12, 13, p. 442) has arrived at the conclusion that the view maintained by most authorities that the animals employed in the laboratory for experimental purposes are immune to botulismus is not correct. He has himself succeeded in inducing, with the ham in question, in animals of various species, symptoms resembling those present in persons made ill by the use of the ham as food. Cats proved especially available for experimental purposes, presenting symptoms quite analogous to those observed in cases of botulismus; marked and persistent mydriasis, alteration of the pharyngeal and bronchial secretions, various partial pareses, manifested, among other things, by prolapse of the tongue, aphonia, aphagia, croupy cough, retention of urine, of feces and of bile, etc. Pigeons presented, in addition to paresis of the wings, interesting paralytic phenomena, such as ptosis, inequality of the pupils, etc. Rabbits and guinea-pigs, as well as apes, proved also susceptible, presenting paretic disturbances after poisoning by the mouth. The conclusion is reached that the pathological manifestations induced by the diseased ham were not due to ptomaines, to the toxic alkaloids of putrefaction. The suspected ham displayed none of the subjective or objective manifestations of putrefaction, while putrid meat failed to occasion similar symptoms, which are attributed to a peculiar change in the meat as a result of the fermentative activity of a special micro-organism designated bacillus botulinus. In addi-

[1] "Nervous Diseases by American Authors," p. 436.

tion, the meat was found to contain bacterial poisons. The organism is a large anaerobic bacillus, provided with cilia and capable of movement. It is pathogenic for a number of animals. and induces symptoms like those seen in animals poisoned with the diseased meat or an aqueous maceration. The toxin produced by the bacillus also gives rise to the same symptoms.

Tracheo-esophageal Fistula of Actinomycotic Origin.—In a communication to the Académie de Médicine, PONCET (*Bulletin de la Académie de Médicine*, 1896, No. 15, p. 403) reports the case of a woman, twenty-eight years old, who came under observation with a perforation between the trachea and the esophagus that had existed about two years and a half. The patient, previously free from pathologic manifestations and without tuberculous antecedents, was suddenly seized with paroxysms of violent cough. Several days afterward there supervened a considerable swelling of the neck, without change in the color of the skin, but with serious threatenings of asphyxia. The diagnosis of deep cervical phlegmon was made, which was soon confirmed by the expectoration of a considerable quantity of pus. From this time the respiratory difficulty disappeared, but when the patient attempted to drink she was seized with paroxysms of cough and appearances of imminent suffocation. For six months aliment, and especially liquids, was given through the esophageal sound. The patient learned that she could swallow liquids by inclining the head strongly backward. She was pale and emaciated, and presented no peculiarity other than tenderness upon pressure along the inner border of the left sternomastoid muscle, about one and a half or two inches above the sternum. A diagnosis of tracheo-esophageal fistula was made, and operation successfully undertaken. Examination subsequently of the discharge that took place from the wound revealed the presence of characteristic actinomycotic mycelium, and inquiry of the patient disclosed the fact that she had frequently partaken of uncooked meat. Further, percussion and auscultation elicited signs of probable actinomycotic lesions at the apex of the right lung, without evidences of pleurisy. The patient was accordingly placed upon treatment with iodids and speedily made notable improvement.

THERAPEUTIC NOTES.

Amelioration in a Case of Progressive Myopathy from Thyroid Medication.—LÉPINE (*Lyon Médical*, 1896, No. 19, p. 35) has reported the case of a man, forty-four years old, who had presented symptoms of idiopathic muscular atrophy for eight or nine years, in which improvement in muscular vigor resulted in the sequence of treatment with thyroid gland, though without influence upon the atrophy. The symptom first noted was a difficulty in arising from the ground while the man was engaged in mining. Then general weakness appeared, the scalpula became alar and the left arm commenced to waste. Subsequently the atrophy involved the lumbo-sacral muscles, the serratus magnus, the deltoid and the biceps on the left side, while sensibility remained undisturbed. Other muscles suffered in like manner, but fibrilary contractions were at no time observed and reaction of degeneration could not be elicited. In standing, which was accomplished with difficulty and required support, the abdomen was protruded and the lumbar curve of the spine was increased. After resort to electricity, and other measures usually employed in the treatment of the myopathies, resort was had to the use of thyroid gland. The fresh gland was rubbed up in a mortar, mixed with a little marshmallow-powder, and administered in cachets, each containing 30 grains of gland substance. During the period of two months an average of 900 grains was taken weekly, the amount for the last week being 1800 grains. Under this treatment the patient soon felt better and was able to use his muscular apparatus with greater vigor; and he improved to such a degree that he declined to remain under further observation. No change was observed in the volume of the muscles, and no bad effects were noticed, except occasional palpitation of the heart when the largest dose was being taken. A similar result was secured in a case previously recorded. The influence of suggestion was safely excluded.

Successful Treatment with Thyroid Gland of a Case of Exophthalmic Goiter in Association with Scleroderma.—GRUNFELD (*Wiener medicinische Blätter*, 1896, No. 20, p. 307) has reported the case of a married woman, thirty-three years old, without special hereditary predisposition, in whom, in the sequence of a profound emotional disturbance, symptoms of exophthalmic goiter made their appearance. In the further progress of the case patches of scleroderma developed in various parts of the body. Other measures of treatment having failed, tablets, each of which contained 3¼ grains of thyroid gland from the calf were administered, at first twice, and subsequently thrice daily. In a short time improvement set in, not only in the symptoms of the exophthalmic goiter, but also in those of the scleroderma, and which was maintained even after the withdrawal of the thyroid gland. Other than slight palpitation of the heart no bad symptoms were observed.

Formalin as a Disinfectant.—WALTER has made experiments to determine the bactericidal power of formalin. His conclusions as published in the *Zeitschrift f. Hygiene und Infectionskrankheiten*, vol. xxi, p. 241, 1896, are as follows:

1. A solution of formalin 1–10,000 checks the development of the bacilli of anthrax, cholera, typhoid, diphtheria, and staphylococcus aureus. Very dilute vapors of formalin have the same action.

2. A one per cent. solution of formalin kills pure cultures of pathogenic germs in an hour. This action is still more marked in dilute alcoholic solutions.

3. A three per cent. solution of formalin disinfects the hands perfectly. Further experiments are required to determine any possible injury to the skin from its use.

4. Formalin powders disinfect without injury in twenty-hours cloth and leather goods.

5. A one per cent. solution of formalin is an instant deodorizer of fecal matter. A ten per cent. solution renders such matter sterile in ten minutes.

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A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, AUGUST 1, 1896.

THE INSULT TO THE PROFESSION.

SOME of our contemporaries who have attempted to follow, as presented in the columns of the NEWS, the position in which the recent events in connection with Bellevue Hospital have placed the profession, are still somewhat in the dark in regard to the exact condition of affairs. The position that the NEWS has taken is to resent the affront that was placed upon the profession and to resist the harmful influence upon the public of the Commissioner's rash and unwise action. The infringement upon the rights of the Medical Board of Bellevue Hospital was properly resented by that Board, and an effort was made to induce the Commissioners to see the mistake that they were making.

At first certain cases were designated in the alcoholic wards as special patients of Dr. Oppenheimer. The visiting physician then on duty expostulated with the Commissioners and notified them that the innovation was demoralizing his service, and asked that if the test of this cure was to be made in the wards of Bellevue Hospital the formula of its composition be placed in his hands and that the experiment be conducted by the regular visiting physicians of the Hospital. The proposition to reveal the composition of the "cure" seemed so preposterous to its proprietor that it was indignantly refused; but in order to allow him to continue his experimentation within the Hospital without friction with the Visiting Board, the specified cases were taken out of the alcoholic ward and all the beds in Ward 33 were set aside for the specific use of the proprietor of the "cure."

When a report reached the Commissioners that two deaths had occurred in Ward 33, they at once addressed a communication to the Medical Board, asking them to investigate the conduct of the experiment and report to them as to the benefits of the treatment, saying: "We are chiefly interested as to whether, as inferred, as public officers we have been instrumental in the death of one and placing in jeopardy the lives of several other patients by permitting the treatment." In reply to this the Medical Board submitted the following:

NEW YORK, July 1st.

To the Honorable Board of Commissioners:

In answer to the communication of June 27th from your Honorable Board to the Medical Board of Bellevue Hospital, we respectfully submit the following:

* * * * * *

In regard to the specific matter referred to in your communication, while we are always ready to investigate any scientific problem presented to us, we are unable to find any logical basis for the investigation of the action of any remedy or remedies, or the efficacy of any method of treatment which does not involve a full knowledge of the composition of the remedy, together with accurate and full details of the proposed plan of treatment; we consequently have and can have no report to make of the specific cases referred to in your communication.

In view of our long public service in your hospitals, we feel justified in deprecating the trial in the hospital of any secret remedy or plan of treatment as opposed to the universally recognized traditions of our profession, and to the best interests of the public and the sick poor under our care.

Signed by the Secretary and President of the Medical Board.

This terminated the communications between the Medical Board and Commissioners in regard to the use of the Hospital.

The Medical Board, however, can take care of itself. With that we have no concern. But the principle involved in this action of the Commissioners is far more important than the administration of any one hospital or any number of hospitals. It strikes at the fundamental doctrine of our profession, namely, that all discoveries of remedies that are beneficial to the human race, when made by one of our number, should be the common property of the whole profession, and should be disseminated as widely as possible throughout the world, and administered by those who make it their life-work to relieve the ailments of mankind.

The mercenary motives underlying the exploitation of this "cure," as exposed in the previous issue of the MEDICAL NEWS, wherein we gave a copy of the charter of the company and the affidavit of its president, that the stock had been fully paid for, must be clear to any sane mind. The fact that the "cure" takes its position simply as one of many others that have been exploited and are being exploited at the present time, is also apparent. It must, therefore, be clear to the Commissioners of Charities, that instead of conferring a boon upon humanity by this wide advertisement of a secret nostrum, they are doing one of the greatest wrongs that it is possible for them to commit. In view of all these facts, we call upon the Commissioners to put a stop at once to the further continuance of this fiasco. They have made the great mistake of their term of office. The mistake has been made clear to them, and the wise action for them now is to correct it as soon as possible.

CAMPAIGN OF THE BOARD OF HEALTH AGAINST FILTH AND DEGRADATION.

THE action taken last week by the Health Department of New York City, in the matter of certain tenements, is gratifying and encouraging to everyone who sincerely desires the limitation of disease and the amelioration of the condition of the poor. Radical, and perhaps severe, it is the only remedy for the evil. The uncompromising policy of this Department in demanding, some years ago, the introduction of water into some filthy and unsanitary tenements belonging to Trinity Church corporation was met by legal action, but the courts sustained the Board of Health. In the present instance, the courts will probably pursue a similar course if litigation should result from this unprecedented action of the Board.

Forty-two rear tenements have been condemned by the Board, and ordered to be vacated and razed to the ground. Most of these houses are situated in Cherry, Mulberry, Thompson, and Greenwich streets and in West Broadway. Altogether they afford accommodations for about 1700 persons. During the past five years the average death-rate has been as high as seventy-five per thousand in one of the Mulberry street rookeries, while in the whole city the average annual death-rate is only twenty-two per thousand. In one double house in Cherry street 472 people were crowded together without air or sunlight. In many instances but six feet of space intervened between the front and rear buildings, and in several houses direct sunlight had no access to any of the rooms.

It is surprising that human beings will consent to occupy such nests of filth and breathe such a defiled atmosphere as did the disease-threatened tenants of the condemned structures; but it is an established fact that certain people prefer such quarters, and that these people are at once the prey and the distributors of many infectious diseases and the foster-parents of much criminality. No one should be allowed to live in such reeking holes, for mental and moral debasement must result, with a swift corollary of crime. The Health Department is convinced that sunlight, together with soap and water, will accomplish for these wretched beings what no other agency can accomplish.

It gives us pleasure to learn that the Board contemplates the condemnation of a hundred similar houses, now under investigation. The influence of every member of the profession should be enlisted on the side of the Health Department, should occasion arise for sustaining its course.

SOME LITTLE-RECOGNIZED FORMS OF LITHEMIA OR "LATENT GOUT."

TEN or fifteen years ago nothing was commoner than to read or hear the statement in professional works and gatherings, "We have very little gout in any form in America," and many

were the theories advanced to account for our comparative immunity and the special liability of our English cousins, in most of which "the wine when it is red" was, as usual, the chief scapegoat, and our "simpler and more temperate habits" our safeguard, the thesis usually ending either with a smug little moral tag and tribute to Miss Willard or a reference to "luxurious and effete despotisms." So widespread and firmly rooted was this connection in the popular mind that in some Western prohibition communities a statement to a patient that he had gouty trouble was resented as an aspersion upon his moral character, and not unfrequently cost the doctor his case. However, we know better now, and are rapidly coming to doubt both the fact and its explanation, as several of our best authorities assert, that alcohol has very little to do with the causation of gout, while we are recognizing on every hand a multitude of morbid conditions, which are of gouty or lithemic origin. But, first of all, a few words as to the terms which we are using.

We regard "gout" and "lithemia" as practically synonymous terms, the latter simply being the wider of the two, and including both the "frank" and the "latent" gout of the older authors. We prefer to use the latter in discussing these subjects simply for this reason, and because gout has become so firmly associated with a red and swollen great-toe, that its application to milder or less obvious forms of the diathesis is apt to cause confusion. Next we must frankly admit that the term "lithemia" is not a chemical, but a clinical one, and stands for the presence of those substances or changes in the blood-plasma which are accompanied by uric acid and the urates. The latter substances are responsible probably for only a part of the disturbances due to this hemic state, but are the only factors readily recognizable and calculable, and hence serve as a convenient index and criterion of the whole group; something after the manner of the CO_2 of vitiated air, of the sulphureted hydrogen of sewer-gas, or of the urea of uremia, although, of course, much more actively concerned than any of these substances.

As to the essential nature of this condition, we shall simply improve upon the suggestion of Garrod and define it briefly as a reversion or falling back on the part of the cells of the liver primarily, and of the skeletal muscles secondarily, to a lower stage of metabolic activity (avian or reptilian), resulting in the production of uric acids, its salts, and other extractives associated therewith, in place of the urea group. As to its causes, they are legion; *any* influence which lowers the vital tone of the organism, as a whole, may provoke it. Nor is its occurrence by any means confined to the human species. Our first cousin —dietetically—the pig, not infrequently suffers from the deposit of tophi, while various birds, especially parrots, develop similar deposits. The interesting thing about bird-tophi is that they consist of the metabolic product of a still lower ancestral stage, guanin, which is the normal urinary excretion of fish and mollusks.

A process which has such deep and widespread roots as this in our past history might naturally be expected to be wellnigh universal, and such is actually the case. Instead of lithemia being rare in America, we venture the assertion that it is by far the most frequent, single pathologic alteration which we meet with in our practice.

Sydenham's witty dictum that gout is the "*morbus dominorum et dominus morborum*" is as true to-day and here, as in England in his time. 'Tis true, it doesn't often advertise itself by attacking the great toe, but milder forms of the very same process are simply innumerable. It appears under as many titles as a Chicago divorcée. For instance, a large proportion of the cases of our "national disease," dyspepsia, are not true disease of the stomach at all, but simply gastric manifestations of the lithemic state and will completely disappear when this latter condition is removed. A large majority of our neuralgias, headaches, and migraines own the same parentage. About all that we really know of rheumatism is that, outside of the acute articular variety, two-thirds of it is gout. The muscular variety is a beautiful case in point. The term makes a beautifully neat, soothing, and satisfying diagnosis, but reminds one of Agassiz's student's definition of the crab as "a small, red fish, which walks backward," which, as the professor commented, was an excellent definition, but slightly defective in

one or two particulars, inasmuch as a crab is not a fish, does not walk backward, and is not red until after it is boiled. Whatever else muscular rheumatism may be, it certainly is not rheumatism, nor has it anything to do directly with the muscle-cells. It is surprising how many cases of chronic diarrhea, even of the "army" variety, in members of the G. A. R., will yield to anti-lithemic treatment, while as to irritable bladder, Carlsbad lithia waters and a suitable diet will be found almost a specific in many cases, not only in men of all ages, but even in young and nervous women supposed to be suffering from "displacements." Any laryngologist of experience will tell you how often in his patients he recognizes the "purple throat," a deep garnet-red pharynx, with a bluish tinge about the palate and fauces, which is the local manifestation of uric-acidemia, and how often even chronic laryngitis is relieved by a thorough "flushing" and small doses of the iodids.

In eczema, the skin specialist regards diet and the correction of any disturbances of renal metabolism as second only to the removal of all local irritation; while "eczema of the capillaries," as Stockton has well called the "interstitial" form of that dread process, Bright's disease, appears to be almost inseparably connected with precedent lithemia as locomotor ataxia is with syphilis. We are well aware that these are sweeping claims and that the domain of this "Pandora's box" shades by such insensible gradations with that of the purely and directly intestinal toxemias that it is hard to decide which is the chief or causal factor in many of these cases. Yet it is our deliberate conviction that this "reversionary" process is one of the commonest disturbances which occur in our tissues, as, indeed, was to have been expected on evolutionary grounds, inasmuch as there could be nothing easier for our muscle- and liver-cells than to fall back one ancestral stage in their metabolism.

The general line of treatment adopted bears out this view. If it could be compressed into one sentence, it would be the old classic prescription to "live on a shilling a day and earn it." Exercise and sunshine come first of all. Keep up all our tissues to the full mammalian standard of metabolism. Then the next great vital necessity, water, and lots of it, in the form of Carlsbad or Friedrichshall, at first for an alimentary flush, and of lithia or strontia waters for a renal one later, if your taste prefer, but the H_2O is the chief thing. Let the diet be as nearly of the "field-hand" variety as the appetite will take, *plenty* of meat, fresh vegetables, and sour fruits, and very little starch or sugars. Sour wines, especially claret, bitter beer, and whiskey up to the "food" limit, if your patient is anemic; it is the fermentable sugars in port, madeira, and ordinary beers that do the mischief, and *not* the alcohol. A spoonful of strawberry jam or a slice of gooseberry tart will provoke an outbreak in a gouty subject as promptly and surely as a glass of port wine.

As for tonics, anything that will whip the cells up to the mammalian level is in order; musk, arsenic, strychnia, and, chief of all, that grand old crystallized sea-breeze, which carries our cells back like the echo of a forgotten song to the days of their sturdy, happy marine childhood on the salt sea beach—potassium iodid.

WOODS HUTCHINSON, M.D.

ECHOES AND NEWS.

Secondary Diphtheritic Tests in the Public Schools of Paris.—The Prefect of the Seine has recently addressed a circular to medical inspectors of schools, calling upon them to supply in addition to the usual certificate of recovery of scholars from diphtheria, another issued by the Bacteriological Service of the City of Paris, affirming the absence of Loeffler's bacillus from the mouths and throats of those same children previous to their readmission to school.

Election in the Royal College of Surgeons, England.—On July 9th the Royal College of Surgeons elected for president, Sir William MacCormac, and for vice-presidents, Mr. Charles N. Macnamara and Mr. John Langton. These are all surgeons of distinguished ability, and their choice must give general satisfaction. It is a source of much pleasure to the many friends and admirers Sir William acquired during his visit to America to note that such honor has been so worthily conferred.

A Graduate but not a Doctor.—The Edinburgh College of Physicians, following the example of her Irish neighbor, has appended to her laws the following: "The diploma granted by the College shall not entitle the holder, by virtue of such diploma, to assume the title of Doctor, or to append to his name the title of Doctor of Medicine,

or the letters M.D., or other abbreviation which might suggest that the holder had obtained the degree of Doctor of Medicine from the University."

Cholera Among the English Troops in the Soudan.—The death of Major Owen, from cholera, while in command of the Arab scouts, together with a limited number of cases of the same disease among the English soldiers, makes a picture with no reassuring features for the expedition. At least seven hundred cases have occurred in the Nile valley, outside Alexandria and Cairo. There are grounds for fear of a possible disaster which may prove worse than defeat.

Not Responsible for an Error of Judgment,—It has been recently decided by the English Court of Appeals that a physician cannot be held responsible for an error of judgment, provided he can show that reasonable competency and care has been brought to the case. The case in question was one in which Dr. Russell had been called to examine a lady, against whom suit for divorce was afterward brought, upon his report of her marital incompetency. She denied the existence of such cause, and brought an action against him for damages, in which the above-mentioned decision was given.

A Bullet in the Brain Located by the X-Rays.—MM. Brissaud and Loude presented to the Académie des Sciences of Paris a skiagraph of the head of a man who presented a variety of most interesting neurological symptoms resulting from a bullet which he carried in his brain. Although not clearly defined, owing in part to involuntary movements during the exposure, the missile was clearly distinguished in the exact location in which both the nervous manifestations and surgical evidences had placed it. If we are not mistaken, this is the first time a bullet has been pictured in the living human brain.

Changes in the Faculty.—At a meeting of the faculty of the Kentucky School of Medicine of Louisville, Ky., held on the 21st day of July, by a vote of five to one, the chairs occupied by Dr. W. H. Wathen and Dr. M. F. Coomes were declared vacant. It has been an open secret among the profession for a number of years that there has been friction among the faculty of this school, and some credence was given this when about a year ago it became known that Dr. Wathen had been deposed from the position of dean of the faculty, which he had occupied for a number of years, and that Dr. S. E. Woody had been elected in in his place.

The Tubercle Bacillus and the X-Rays.—M. Lortel has given the results of his efforts to determine the influence of the X-rays upon tuberculosis. He injected eight guinea-pigs with a culture taken from another pig. Three of these, after three days, were daily subjected to the influence of the Crookes' tube upon the point of injection for one hour over a period of fifty-four days. At the end of forty-five days the other five animals showed suppurating abscesses about the place of injection, while the three remained healthy and increased in weight. This is interesting, as no other experimenter (outside of Chicago) has found any appreciable effect exerted by these rays upon the life or growth of germ life.

Hospital Infection by Tuberculosis.—Dr. Paul P. Prendergast, who died in Brooklyn, on July 10th, must be regarded as the victim of a hospital infection by tuberculosis. This young physician was graduated, in 1894, from the College of Physicians and Surgeons. Until about one year ago, he had been in good health; he was fully six feet in height, and weighed two hundred pounds. After graduation, he attended most assiduously to his duties at the hospitals, at the Sloane Maternity in New York, and at the St. Mary's and Seney Hospitals in Brooklyn. He sought relief in the Adirondacks and California, but his efforts to recover were unfortunately fruitless.

The Kind of Medical Men to Avoid.—The one who has acute exacerbations of insanity when exposed to any new fad; the one who is always successful with all his difficult operations; the one who always sees hundreds of cases of a rare disease; the one who can always match your case and improve on your treatment; the one who always finds you have omitted something in the examination of your case; the one who thinks he can talk well and is always ready to discuss any paper of the evening; the one who is always first to do the new operation; the one who is in a chronic fear of his being anticipated in his important discoveries; the one who, in consultation, feels it is his conscientious duty to explain to the patient why he differs from the attending physician.—*Canada Lancet.*

Diphtheria Antitoxin in Great Britain.—Appreciating the apparent fact that in the British Isles the serum treatment of diphtheria had not attained the results reported from the Continent, *The Lancet* conceived the idea that it was due possibly to a difference in the antitoxin, and to decide the question caused a long and careful investigation to be made which abundantly substantiates the suspicion. It was thus shown that few, if any, of the English preparations were reliable in strength, in which particular wide variations were discovered. Great credit is due *The Lancet* for the good work thus accomplished. We append the conclusions drawn from this report: "(1) That a common standard of estimating the strength of antitoxin serum should be agreed upon by the English manufacturers. (2) That no serum should ever be sent out containing less than sixty normal antitoxin units per c.c. (3) That antitoxin serum of higher strengths must also be provided to meet the requirements of treatment in more severe cases of diphtheria. (4) That every sample of antitoxin serum sold should be plainly marked with the antitoxic strength of the serum (number of normal antitoxin units per c.c.), the quantity of serum present in the bottle, and the date of issue."

Obituary.—Dr. Edward Gutmann, who died in this city on July 21st, was born at Halle, Germany, in 1828, and was educated at the University of Berlin. He came to this country in 1854 and practised medicine in this city until 1869, when he gave up his practice to travel abroad. The next few years of his life, Dr. Gutmann devoted to the study of ancient and medieval art, and in his search

for rare pictures, books, and statuary, he visited Europe, Asia, and Africa, where he made a special study of Egyptian art. Dr. Gutmann spent several years in Rome, where he gathered a collection of books of art, particularly those of the Renaissance period. On his return to this city he published a treatise on "The Sarcophagus and the Grave Monuments of Old Greece and Rome." This book was issued by subscription, and among the subscribers were Queen Victoria, King Humbert of Italy, Emperor William of Germany, and many other distinguished persons throughout Europe. The only copies sold in this country were to the Smithsonian Institution and to Johns Hopkins University. Dr. Gutmann was a member of the Natural History Museum, the Metropolitan Art Museum, and the Freundschaft Club, and has probably bequeathed his splendid library of over six thousand volumes and his art collection to the New York Metropolitan Museum of Art.

The Hazards of the Medical Life Commercially Recognized.—According to the *Insurance Herald*, certain insurance companies are about to assume different relations toward medical men as "risks." The conviction is gradually forcing itself upon managers of accident insurance companies that physicians are extra-hazardous risks, and do not belong in the preferred class, where they are at present generally listed. A comparison between the probable hazards incurred by a doctor and a member of any other profession or business classed as preferred, illustrates this point at a glance. Possibly the most objectionable feature about the physician's hazard is that many injuries which are slight and of no consequence to other people, are total disabilities to doctors, and consequently causes for indemnity claims. For instance, a doctor performing a surgical operation, injures his finger or hand. While the injury may be in itself slight, it is very likely to be such as to prevent the doctor from resuming his occupation until the wound is entirely healed, and during the interval the company is required to pay indemnity. Then there is the "horse hazard." A horse and buggy is a necessity to every doctor with any practice at all, and he is thus subject to runaway and collision accidents to an unusual degree, owing to the incessant use of the horse, and the rapid pace at which a doctor is usually obliged to drive.

Reform in New York Charities that Receive Over $20,000,000.—Dr. Stephen Smith and Dr. E. V. Stoddard, are members of a newly appointed committee of inspection of charities, under the New York State Board of Charities. Their duties relate largely to the economic expenditure of moneys, bestowed by the State upon hospitals, dispensaries, and other charitable institutions. Under the new State constitution, supplemented by laws passed last winter, it is provided that the State board of charities "shall visit, inspect, and maintain a general supervision of all institutions, societies, or associations which are of charitable, eleemosynary, correctional, or reformatory character, whether State or municipal, incorporated or not incorporated, which are made subject to its supervision by the constitution or by law." The committee of inspection will investigate all charities in Brooklyn and New York, both public and private, and will organize a system of direct supervision over all charitable work. The State has appropriated $10,000 for this year's work. The charitable donations last year in New York State, public and private, amounted to the immense sum of $23,000,000. No other State spends nearly as much. It is to provide for the wisest distribution of this money that the present supervision has been provided.

SOCIETY PROCEEDINGS.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, Monday, May 18, 1896.

The president, JOSEPH E. JANVRIN, M.D., in the chair.

LOUIS F. BISHOP, M.D., of New York City, presented a case of

PRIMARY PLUGGING OF THE BRACHIAL ARTERY

in a girl fifteen years of age. The trouble had come on quite suddenly, and was characterized by a total loss of tactile sensibility in the hand on the affected side. There was no radial pulse, and no arterial pulsation up to the upper third of the arm, where a cord-like hardness could be felt. There was unquestionably a neuritis of the arm, due to some traumatism, and one result produced was a dry gangrene of two of the finger-tips and of the thumb. He had arrived at the conclusion that this was a case of primary plugging of brachial artery. At the present time collateral circulation seemed being gradually established, and there was a slow amelioration of the symptoms. There was apparently no cardiac disease, and the patient was not suffering from diabetes.

CHARLES J. PROBEN, M.D., of New York, read a paper on

EXPERIENCE WITH PILOCARPIN IN THE TREATMENT OF UREMIA OF BRIGHT'S DISEASE.

In the condition named, the desirability of temporarily acting on the skin had long been recognized, and when jaborandi, and its active principle, pilocarpin, were brought to the attention of the profession, it was hoped that a very useful addition to our therapeutical armamentarium had been gained. It was soon found, however, that the dangers attending the use of this agent, militated very seriously against its general employment. Having described the physiological affects of pilocarpin, he stated that the depression of the heart's action produced by it was very similar to that caused by nicotin. It had been found that the toxic effects of the drug were best overcome by atropin, and the antagonism between the two agents was now well established. In cases of atropin poisoning, he thought pilocarpin should be more frequently used than was now the case, although the fact could not be denied that atropia was more efficient in pilocarpin poisoning than pilocarpin was in atropia poisoning. Where toxic effects resulted from the administration of pilocarpin, the ordinary circulatory stimulants should also be resorted to.

Dr. Proben then referred to a number of authorities,

among them Fordyce Barker, who had favored the use of pilocarpin, and who then had fatal cases in patients suffering from puerperal uremia, Henrop, Singer, Loomis, and Strümpel. Many fatal cases were also recorded in general medical literature. The question then arose, were we justified in continuing the use of this agent? There was still a division of opinion on this subject, and Osler, who after giving it up entirely, had more recently returned to its cautious employment, in doses of from one-eighth to one-sixth of a grain. Dr. Proben expressed the opinion that probably the only cases in which pilocarpin could be used with safety were those in which there was simple hypertrophy of the heart, with a strong action. The contractive power of the heart was what we had to depend upon as a guide for its administration. Its employment was certainly contraindicated if there were present any dulness over the lungs, or pneumonia, emphysema, pleurisy, coma, fatty degeneration of the heart, or cardiac insufficiency. To ascertain the condition of the cardiac muscle, auscultation with the binaural stethoscope was called for, and any impairment of the first sound of the heart should make one hesitate to use pilocarpin.

At this point he said that he would digress for a moment to express his conviction that in the intravenous injection of hot saline solutions, as advocated by Dr. Beverly Robinson and others, we had an agent which was far more efficient, as well as safer, than pilocarpin in bringing about the relief sought for in anemic cases. He had now used this in two cases, and he believed it was in every way preferable to pilocarpin.

He then proceeded to give the details of three cases in his experience in which pilocarpin had produced fatal results. The first was that of a female, forty-two years of age, suffering from chronic uremia. The heart and lungs were apparently normal. One-tenth of a grain of pilocarpin hydrochlorate was injected subcutaneously. Collapse from cardiac paralysis resulted and death ensued in the course of an hour, notwithstanding the most active efforts to avert the catastrophe. In the second case, one of chronic interstitial nephritis, death from collapse from cardiac paralysis resulted within three hours after the hypodermic use of pilocarpin. In the third case, in which the patient was also suffering from cirrhosis of the liver, fatal collapse likewise resulted. In this instance one-fifth of a grain of pilocarpin was injected. In none of these cases were there any contraindications to its use, and yet a rapidly fatal result followed in all of them. On the whole, therefore, while he believed that in some cases pilocarpin could undoubtedly be given with benefit, he thought that, on account of its marked depressant effect upon the heart's action, its administration should be banished from the treatment of Bright's disease.

Dr. Proben then went on to say that within the past week, after his paper had been finished, he had met with a case of puerperal eclampsia. Labor came on about two weeks before the expected time. He was called to the patient after one convulsion had occurred. He summoned assistance, administered chloroform, and proceeded to deliver with forceps, although the os uteri was not yet fully dilated. After delivery there was another convulsion. The urine was found to contain about twenty per cent. of albumin. The patient seemed to be doing well, and he finally left her. In the middle of the night, however, he was hastily called, and found that she had had another convulsion and that she had scarcely passed any urine at all. He at once opened the median cephalic vein, and injected two quarts of a hot saline solution. The effect was most happy. Within two hours she passed a considerable quantity of urine, and she had no more convulsions. During the twenty-four hours following the saline injection she passed no less than 109 ounces of urine, while in the preceding twenty-four hours she had passed only 2 ounces. His experience in this case had confirmed him in the conviction that we had in this procedure a resource more reliable than any drug.

DISCUSSION.

J. Lewis Smith, M.D., of New York, said that though he had had no experience with pilocarpin in adult life, he had records of a number of cases of scarlatinal nephritis in children, in which he had employed it. Notwithstanding the fatal results noted by the reader of the paper and others, he believed that it was in reality a very useful remedy, and that in time it would come to be given in such a way that it would be generally recognized as such. Some time ago he remembered a well-known practitioner remarking to him that he would never use pilocarpin again. The reason that he gave for this was that he had found that it was liable to produce a kind of bronchorrhea, which was almost always fatal. Not long after he heard this remark, Dr. Smith was called in consultation to see a child, two years of age, who had recently had scarlet fever. The attack was not a severe one, but it was followed by kidney disease, which resulted in general anasarca. A single dose of pilocarpin was administered, and as a result of this bronchorrhea was rapidly produced, accompanied by the most intense dyspnea, so that the patient soon succumbed.

On the other hand, he had seen other cases in which the remedy acted with the most happy effect. It was, therefore, a sword with two edges, and he hoped that a way would be discovered by which it could be administered in comparative safety. Perhaps if it were given in connection with some such heart stimulant as strychnia, in large doses, its dangerous effects might be, to a great extent, obviated. Dr. Smith then proceeded to give the details of two or three cases in which great benefit was derived from the use of pilocarpin. One of them was as follows: A child, five years old, who had had a severe attack of scarlatina, and was apparently convalescing admirably, when general anasarca rapidly set in. The attempt was made to administer infusion of digitalis and acetate of potassium, but this was for the most part vomited, as the stomach was exceedingly irritable. Only two ounces of urine passed in twenty-four hours, and uremic convulsions ensued. The pulse was quick and full, and the axillary temperature 103. The convulsions, after lasting an hour, were controlled by potassium bromid and chloral. One thirty-second of a grain of muriate of pilocarpin was then ordered every three hours. This remedy was not vomited,

and it had the effect of causing free diaphoresis and an increase in the quantity of urine passed. Afterward the child had eclampsia occasionally, but the convulsions were readily controlled by chloral hydrate administered by the rectum. She did not vomit again, and gradually recovered under the use of pilocarpin, which was afterward given at six instead of three hour intervals.

Other simllar cases were referred to, and Dr. Smith said that in these instances the patients under ordinary methods of treatment would probably have died. The only fatal case which he had seen in a child was one he had met with in consultation, where death seemed to be due to bronchorrhea. In general, he thought the danger in the use of pilocarpin was probably more from the accumulation of serum and mucus in the chest than from the depressing effect of the drug upon the heart.

J. BLAKE WHITE, M.D., of New York, said that his experience was a little different from that of either Dr. Proben or Dr. Smith. While he believed that pilocarpin was a dangerous remedy, which should always be used with great discrimination, personally he had never seen any bad effects from it. His own observation was perhaps more limited than that of Dr. Proben, but he had employed the remedy in rather a different way. It had been his practice to give only from one-twelfth to one-sixth of a grain, always hypodermically, and he had usually combined with it some cardiac stimulant, such as strychnia or digitalis. It seemed to him that in the cases of Barker and Singer, referred to in the paper, the cerebral and pulmonary edema noted was not necessarily due to the drug, but might perhaps have resulted from the disease itself, as Rees had pointed out, that such effusions sometimes occurred in uremia. In Dr. Proben's own cases the patients appeared to be enfeebled, and hence not able to resist the depressing effects of the remedy. It was a singular thing that children were specifically tolerant of pilocarpin, and that it was probable that it could be more safely given to them in proportionally larger doses than was the case in adults.

He believed the remedy to be a very valuable one, but on account of the danger connected with its use, as he had said before, it should always be employed with great discrimination. In order to produce the best effects of the drug he had always found it necessary to assist diaphoresis by wrapping the patient in a blanket. Another point of importance was, that after the diaphoresis had been established it should not be allowed to subside too suddenly, but that the recurrence to normal should be accomplished gradually.

DR. PROBEN, in closing the discussion, said that the tolerance for pilocarpin in children was now pretty well established, and that, as a rule, they bore the remedy much better than adults. As to the so-called case of bronchorrhea, referred to by Dr. Smith, he believed that the condition was probably simple edema of the lungs, due to cardiac paralysis. In cases where pilocarpin produced toxic effects the serum was exuded into the parenchyma of the lungs, and not simply into the bronchi. He thought the administration of stimulants, such as alcohol and strychnia, in connection with pilocarpin, a good idea. Atropia was the best antagonist of the drug, but unfortunately it could not be used on account of its action in suppressing diaphoresis. As to Barker and Singer's cases, he thought that it must be admitted that the rapidly fatal results were really due to the pilocarpin, as modern authors did not endorse the old idea that edema of the brain was a natural result of the disease. As in the cases, in which pilocarpin was indicated, it was of the utmost importance that rapid results should be accomplished. He believed that the drug should always be administered hypodermically.

WM. M. LESZYNSKY, M.D., of New York, read a paper upon

THE DIAGNOSIS AND TREATMENT OF PARALYSIS OF PERIPHERAL ORIGIN.

He said that his special object in preparing this paper was to emphasize the great practical value of electricity in the matter of diagnosis. It was based on nearly four hundred cases, many of which had been under observation for a number of months. The field was such a large one that he proposed to confine his remarks to facial paralysis and paralysis of the upper extremities. Given a case of paralysis, it was very important to determine as speedily as possible whether it depended on a lesion of the brain, a lesion of the spinal cord, or was of peripheral origin.

The most common cause of peripheral paralyses was traumatism, either from direct wounding of the nerve, from pressure during sleep, or from refrigeration. Paralysis affecting the face, but not involving any other parts, was rarely of cerebral origin. When facial paralysis was due to a lesion of the brain it affected lower branches of the nerve merely while facial paralysis of peripheral origin affected all the branches. In peripheral facial paralysis the faradic irritability of the muscles was either impaired or entirely lost within ten days. The ordinary galvanic formula was also reversed, the anodal closing contraction being greater than the cathodal. Under these circumstances we had what is known as the reaction of degeneration. The application of electricity thus enables us to make a differential diagnosis. The reactions noted indicated some lesion either of the nucleus or in the course of the nerve trunk.

In the treatment the galvanic current should be used. In almost all cases, however, a greater or less improvement gradually resulted, no difference what treatment was employed. In some cases of fascial paralysis there was an exposure of the eyeball, and it was highly important that measures should be taken to protect the latter from injury when this was the case. Otherwise, ulceration or perforation of the cornea might result.

In peripheral paralysis of the upper extremity, the brachial plexus might be affected in a number of its branches, or sometimes only in one. A case was related in a male of thirty-eight, in which all the groups of muscles of the arm and shoulder were profoundly affected except the biceps group, which was only slightly implicated. Almost complete recovery took place in two years. The paralysis met with in infants as a result of pressure during parturition was sometimes mistaken for disease of meningeal origin. In a few weeks, however, by means

of electricity, a differential diagnosis could be made. Paralysis of the musculo-spiral nerve, producing wrist-drop, was usually produced by pressure, and was common after profound alcoholic stupor. It might be mistaken for lead paralysis, but in the latter one side was usually affected before the other.

Peripheral paralyses could, for convenience, be divided into three classes, *first*, slight, *second*, medium, and *third*, severe. The slight form would recover, without treatment, in about fourteen days. In the medium form, with partial reaction of degeneration, two months were required; and in the severe form, with more or less complete reaction of degeneration, nine months. The question naturally arose, has electricity really a beneficial effect in these cases? Dr. Leszynsky said that, judging from a pretty large experience, he felt confident that the process of regeneration is materially expedited by the judicious use of electricity. Discrimination, however, should be used in its employment, and care should be taken that the muscles should not be over-stimulated by too strong a galvanic current. The electrical treatment should be commenced within two or three weeks after the occurrence of the paralysis, unless severe neuritis were present. He did not think *suggestion* of much value in this class of cases, and certainly it was of no use in young children. In traumatic division of a severe operation, procedures should at once be taken. In addition to electricity, massage and other appropriate measures should be employed, and in certain instances mechanical appliances were called for.

The paper was discussed by Drs. H. W. Berg, L. F. Bishop, and J. Blake White, and the discussion was closed by Dr. Leszynsky.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, May 13, 1896.

The President, Dr. James C. Wilson, in the chair.

Silas Updegrove, M.D., of Philadelphia, read a paper entitled

NECESSITY FOR THE STATE TO DEMAND THE ADOPTION BY THE COLLEGES OF A MORE UNIFORM STANDARD OF EDUCATIONAL REQUIREMENT FOR THE DEGREE OF DOCTOR OF MEDICINE.

It was stated that a recent application to the Assembly of the State in regard to the matter had resulted in the establishment of three boards instead of one for the examination of candidates for a license to practise medicine. To justify the creation of more than one board it was claimed that each was to represent a certain school or method of cure. All diseases, the speaker remarked, might be divided into two classes, viz., the curable and the incurable. Diphtheria was an example of the curable class. Cases of diphtheria get well under treatment, or even without treatment. Other do not get well under any circumstances. No formula is known that can be adopted as a method of cure for all cases of diphtheria or other disease of the class to which it belongs, and no reputable college should adopt a formula of cure as the basis of educational requirement for the degree of doctor of medicine. The speaker compared the requirement of a knowledge and acceptance of the law of similars by medical colleges with that of an acceptance and knowledge of the Ptolemaic system of astronomy by other institutions as a condition of a degree. Dr. Updegrove declared that in order that there be true medical education there must be some recognized authority by the State upon medical questions. This was so, he said, in other departments. In law, the Supreme court is the authority; in astronomy, those learned in astronomy; then, why should not the medical profession of the world be accepted as authority in declaring that a universal method of cure has not been established? Dr. Updegrove said that a world of trouble might have been saved a half century ago if the medical profession had been recognized as an authority in declaring against the law of similars. He also referred to the absurdity of submitting legal questions to the decision of the public instead of to a legal tribunal; but, he added, medical questions were passed upon and decided by those who had no knowledge of medicine. To further emphasize the absurdity the speaker gave some decisions of the Supreme Court regarding disputed questions. One case was in regard to calling a homeopath a quack. The court assumed that the homeopath had a system, and did not assume that this system had a basis of false pretense, and a fine of one hundred dollars was imposed upon the defendant. Another suit was for malpractice. The court ruled that if there are distinct schools of practice, and a physician of one of the schools is called in, his treatment is to be tested by the general doctrine of his school. In one case, tried in the State of Iowa, the court ruled that a physician is expected to practise according to his professed and avowed system. The court further said that there is no particular system of medicine established or favored by the laws of Iowa, and as no system is upheld, none is prohibited. The regular system is still regarded by the law with no partiality or distinguished favor, nor is it recognized as the exclusive standard or test by which other systems are to be judged.

J. Solis-Cohen, M.D., of Philadelphia, exhibited a

TONGUE DEPRESSOR

by means of which the interior of the larynx and treachea can be inspected directly without the aid of a laryngoscopic mirror. The instrument was a device of Dr. Kirstein of Berlin, who called it an autoscope, but the term is unfortunate, the word meaning examination of oneself. A better name for the instrument would be ortholaryngoscope. In reality, the device was a tongue depressor. The difficulty in making a direct examination of the larynx is due to the presence of the epiglottis. To overcome this the laryngoscopic mirror has been deviced. The ortholaryngoscope is so constructed as to get the epiglottis out of the way of direct inspection. This instrument is practically a univalve speculum of sufficient length to reach the base of the tongue in front of the epiglottis. This organ is connected with the tongue by the glosso-epiglottic ligaments. When these ligaments are pressed downward and forward toward the hyoid bone, the epiglottis is tilted forward and the dorsum of the tongue and the larynx are brought into the same place. During the

examination the patient if seated, with neck extended and the head thrown back, and with good illumination, the examiner can look directly into the larynx. In certain cases in which the epiglottis cannot be pulled forward in the way described, a straight instrument is used, which is brought over the cocainized epiglottis, which is thus brought forward. An attachment can slide over the tongue depressor for the purpose of avoiding trouble with the teeth and moustache. As the patient naturally is apt to close the mouth, a cap is placed upon the instrument. The advantage of this tongue depressor is, that instead of the ordinary laryngoscopic instruments, direct instruments may be used, for instance, forceps and probes, and operations can be performed as upon any other part of the body. Dr. Cohen showed an ingenious arrangement fn the handle of the tongue depressor by means of which any insufficiency in the light may be supplemented. This consist of a small electric light of twelve volts, with the aid of which and by means of a contrivance of a hood and prism the light is thrown horizontally along the tongue depressor. Not every patient will submit to the use of this instrument, as a good deal of pressure must be exerted; but as familiarity with it increases it will be available in a great many more cases than now seems possible. The instrument has the further advantage of showing the posterior wall of the larynx, while the laryngoscope reveals principally the anterior parts; thus one instrument supplements the other.

By invitation of the directors, B. ALEXANDER RANDALL, M.D., of Philadelphia, exhibited a large number of lantern views demonstrating

THE SURGICAL ANATOMY AND PATHOLOGY OF THE MASTOID.

REVIEWS.

DISEASES OF THE SKIN; Constituting the fifth volume of "Twentieth Century Practice; an International Encyclopedia of Modern Medical Science." Wm. Wood & Co., New York.

THIS volume is the work of various writers, including some of the leading authorities of Europe and America.

Like every production of multiple authorship, it is admirable in some parts and open to criticism on account of its weaker portions. The arrangement of the various classes of skin disease is hardly to be commended since it involves repetition in the discussion of some affections and no mention of others.

The work will doubtless be of value to dermatologists, who will find in it some facts which are new and important. To the physician in general practice, however, it will be somewhat confusing and far less instructive than any one of the recent standard works on dermatology. It can hardly be expected that he will appreciate a volume treating of "Pinta disease," an eruption confined chiefly to the tropical regions of South America. "Hodara's disease," a kind of trichorrhexis nodosa, which, Menahem Hodara says, is frequent among the women of Constantinople, and other rare dermatoses never seen and rarely heard of in America, to the exclusion of practical articles on ichthyosis, lupus vulgaris, and other common affections which he is often called upon to treat.

The work is well printed, and contains a few new and instructive illustrations.

PRINCIPLES OF BACTERIOLOGY. By A. C. ABBOTT, M.D. Third edition enlarged and thoroughly revised; 12 mo.; pp. 493. Published by Lea Brothers & Company, Philadelphia and New York.

THAT a third edition of this valuable work should be required in a little less than a year, is in itself evidence of its intrinsic merit, and in presenting this important subject in so compact and readable a volume, the author has placed not only the teachers of bacteriology, but also the whole medical profession under obligation to him. After presenting the most reliable methods of sterilization, the preparation of nutrient media and the isolation of bacteria, this volume proceeds to give a clear outline of experiments in and practical applications of the principles underlying this important department of medical knowledge. The biology of the more common pathogenic organisms is also given. As a text-book for students and beginners in the study of bacteriology, as well as for the busy practitioner, who desires a certain degree of familiarity therewith, this book can be unhesitatingly recommended. The style is condensed and succinct without sacrificing in any degree ease or clearness. The mechanical preparation of the book is to be commended, and the illustrations are good and helpful. Of these, seventeen are colored.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE, FOR THE PERIOD FROM JUNE 21, 1896, TO JULY 15, 1896.

PURVIANCE, GEORGE, Surgeon, to assume temporary command of service at Philadelphia, Pa., for thirty days, July 3, 1896.

PECKHAM, C. T., Passed Assistant Surgeon, placed on waiting orders, July 3, 1896.

WHITE, J. H., Passed Assistant Surgeon, to proceed from New York, N. Y., to Key West, Fla., for special duty, July 10, 1896.

VAUGHAN, G. T., Passed Assistant Surgeon, granted leave of absence for thirty days, July 7, 1896.

STIMPSON, W. G., Passed Assistant Surgeon, to assume temporary command of Service at Port Townsend, Washington, July 3, 1896.

SPRAGUE, E. K., Assistant Surgeon, to proceed from Boston, Mass., to New York, N. Y., for temporary duty, July 10, 1896.

WICKES, H. W., Assistant Surgeon, granted leave of absence for twenty-seven days, July 8, 1896.

GREENE, J. B., Assistant Surgeon, to proceed from Baltimore, Md., to Point Pleasant, N. J., for physical examination of crews of Life Saving Service, July 13, 1896.

JORDAN, W. M., Assistant Surgeon, to proceed from Birmingham, Ala., to New York, N. Y., for temporary duty, July 13, 1896.

PROMOTIONS.

NYDEGGAR, J. A., Assistant Surgeon, commissioned by the President as Passed Assistant Surgeon, July 7, 1896.

STEWARD, W. J. S., Assistant Surgeon, commissioned by the President as Passed Assistant Surgeon, July 8, 1896.

APPOINTMENT.

JORDAN, WILLIAM M., of Alabama, commissioned by the President as Assistant Surgeon, July 7, 1896.

THE MEDICAL NEWS.
A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXIX. NEW YORK, SATURDAY, AUGUST 8, 1896. NO. 6.

ORIGINAL ARTICLES.

TECHNIC OF ABDOMINAL SALPINGO-OÖPHORECTOMY WITHOUT PEDICLE.[1]

BY T. J. WATKINS, M.D.,
OF CHICAGO;
GYNECOLOGIST TO ST. LUKE'S, PROVIDENT, AND LAKESIDE HOSPITALS.

A PAPER upon this subject would have been more acceptable before vaginal hysterectomy, vaginal salpingo-oöphorectomy, and vaginal incision and drainage had become well-established operations. Although these operations have a wide field of usefulness, abdominal salpingo-oöphorectomy is the operation of election in many cases of pelvic disease, and is, therefore, deserving of careful study. I believe that many of the unfavorable results which have followed abdominal salpingo-oöphorectomy have been due to faulty technic. The technic of the operation has been developed by so many surgeons that it is impossible to give each the credit due him, and to attempt to give the development of the operation in detail would unduly lengthen this paper.

I. CURETTAGE OF THE UTERUS.

This procedure should always precede abdominal section for the removal of the uterine appendages, because in these cases the endometrium is usually so diseased as to interfere with the recovery of the patient if this part of the operation is omitted, and because thorough cleansing of the uterus, vagina, and vulva, is imperative in case vaginal drainage is required.

The abdomen, vagina, and vulva, having been previously prepared, the vagina and vulva are again thoroughly cleansed under anesthesia. The uterus is then dilated, curetted, irrigated, and, if septic, packed with iodoform gauze. The vagina and vulva are then cleansed again in order to remove any septic material which may have escaped from the uterus during curettage. The pelvic organs are next carefully examined, and if any doubt exists as to the operation of election, an exploratory incision is made through the upper part of the posterior vaginal wall. The index finger is passed through this opening and the uterus and appendages are carefully examined. Great care should be taken to avoid rupture of an abscess into the general peritoneal cavity. If an exudate exists between the vagina and rectum, it is probably extraperitoneal, and should be evacuated through a vaginal incision and the cavity thoroughly cleansed and packed with gauze. If the exudate is not extraperitoneal, the swelling would not extend far below the point at which the peritoneum is reflected from the rectum to the uterus. If positive indications for abdominal incision exist, the vagina is sponged dry and packed with iodoform gauze, and the patient is placed in a moderate Trendelenburg position.

II. ABDOMINAL INCISION.

The abdomen having been thoroughly prepared is washed with ether, iodoform collodion is painted over the umbilicus, and an incision through the abdominal wall, two or three inches long, is made along the linea alba through the skin and subcutaneous fat down to the aponeurosis. The lower end of the incision should be at about the upper border of the pubes. If the uterine appendages appear to be fixed high in the pelvis, an incision of the same length should be made, but nearer the umbilicus. The aponeurosis is then incised, whereupon the sub-peritoneal fat is exposed, this may be separated with the finger or incised, whereupon the peritoneum will come into view. The hemorrhage is controlled by forci-pressure. The peritoneum at the upper end of the incision is caught on either side superficially by two forceps and elevated. If the fold thus formed is translucent it does not contain omentum, intestine, or bladder, and is incised between the forceps. The opening in the peritoneum is then enlarged, care being taken not to injure other structures. The peritoneal incision should never be carried down as low as the incision through the skin; this does not interfere with freedom of manipulation, and protects against the danger of injury to the bladder.

Should the incision through the aponeurosis enter the sheath of the rectus, as usually occurs, the inner border of the muscle may be found by pushing the handle of the scalpel along the upper border of the sheath on either side of the incision; then by placing the index fingers between the recti muscles, the tissues above the peritoneum

[1] Candidate's paper, presented for admission to the Am. Gynec. Soc., May, 1896.

may be easily separated the whole length of the wound. When the peritoneum is much thickened by disease, great care should be exercised in incising it. The incision is enlarged to facilitate the operation, when numerous adhesions or very large appendages are present.

III. SEPARATION OF ADHESIONS.

1. *Adhesions of Omentum.*—If the adhesions are not strong they are separated; if strong, they are not separated, unless the uterus cannot otherwise be reached. Adhesions are separated either by rubbing them between the thumb and index finger, or by pushing the omentum from the organ at the point of attachment with the fingers covered by gauze. None of the omentum is excised unless it is necrotic, or much thickened by inflammatory exudate. All bleeding points are carefully ligated with fine catgut or silk.

2. *Adhesions of the Intestines.* — Intestino-uterine adhesions are separated between the fingers or with gauze as described above. If the adhesions are so firm as to endanger the integrity of the intestinal wall, the peritoneum covering the uterus is incised above the point of adhesions, and the adherent portion of the peritoneum is separated from the uterus and left attached to the intestine. The intestine is not separated at the time from uterine appendages, or from the broad ligaments, because, I believe, less time is required and less danger of injury to the intestine is incurred by immediately proceeding to enucleation of the uterine appendages.

3. *Adhesions of the Uterine Appendages.*—If pus is present, the intestines are systematically walled off from the pelvis by the free use of gauze pads. In case of rupture of the abscess during the process of enucleation, a basin of strips of gauze should be ready to take up the pus as fast as it escapes. With the uterus as a landmark, the appendages are examined, and enucleation is commenced at the place where adhesions are least firm and fibrous.

If a large abscess with extensive firm adhesions exists, the pus is removed by aspiration, and the punctured wound closed by forceps, ligated, or protected with gauze. If during enucleation adhesions, which seem to be formed by a solid exudate, are encountered, great danger of rupture exists, because this condition always indicates points at which leakage of pus has occurred. Adhesions of this character should always be left until all fibrous adhesions have been separated, and if the abscess is large, should not be separated until the pus has been removed by aspiration. In severe cases, time can be saved and the danger of rupturing the abscess lessened by commencing the enucleation low down posterior to the uterus, or on the uterine side of the appendage. This is preferable to making the enucleation along the tube on the upper surface from the uterus as is still frequently recommended.

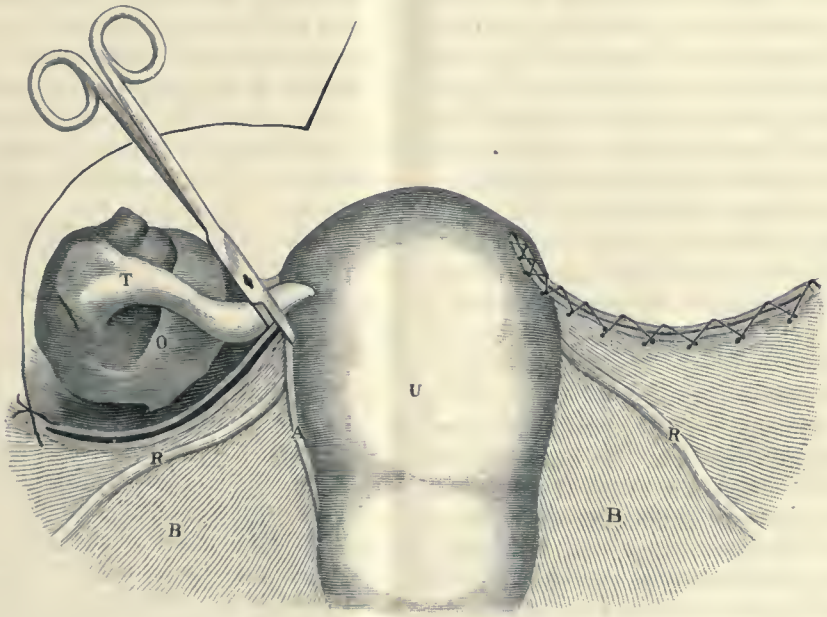
It should be remembered in this connection that tubo-ovarian abscesses are frequently posterior to the broad ligaments, and that they should be entirely rolled out from this location before attempting to bring them into the abdominal wound. When the appendages are free from adhesions to the uterus, broad ligaments, and pelvic wall, any intestinal adhesions which may be present, can usually be separated with surprising facility and safety. If adhesions of the intestines to the broad ligament exist, and are so firm that their separation will result in serious injury to the intestine, they should be left undisturbed. This method of enucleation, which must be accomplished largely by touch, is, I believe, far preferable to the separation of all adhesions under sight, which necessitates working from above downward. Some surgeons advocate the separation of all adhesions, and others believe in separating as few as possible, consistent with thorough removal of the diseased appendages. It would seem good surgery to break up all friable adhesions and to disturb the very firm adhesions as little as possible. The separation of firm adhesions frequently results in serious injury to the intestine, and the raw surfaces thus made are certain to become adherent, and the new adhesions may do more damage than the original ones. In a recent operation, after I had enucleated one appendage, it seemed impossible to enucleate the other on account of extensive and firm intestinal adhesions. After removal of the uterus, however, it was easily enucleated.

IV. EXCISION OF THE APPENDAGES AND SUTURE OF THE BROAD LIGAMENTS.

After all adhesions have been carefully separated, one of the appendages is raised into the wound, and the abdominal wall is retracted with a Simon speculum, or a broad, short retractor placed anterior to the broad ligament. A medium-sized catgut suture about eighteen inches long, armed with a blunt pointed needle about 1½ inches long, is then carried under the infundibulo-pelvic ligament just deep enough to include the ovarian artery. This suture is tied, the short end is cut off near the knot and the long end is left to suture the broad ligament. The tube and ovary

are next separated from the broad ligament by dividing the latter close to the tube from a point just external to the tube and ovary, and by continuing the division until the uterus is reached. All bleeding points are caught with forceps, and the uterine artery is clamped immediately underneath the tube before it is severed (see figure). The tube is excised flush with the uterus, or if its uterine portion is diseased, the dissection is carried into the horn of the uterus to a point beyond the affected portion.

The wound is then closed with the long end of the suture just mentioned, which was used to ligate the ovarian artery, by the glover's stitch, an assistant holding the end of the suture constantly taut. The stitches are inserted about one quarter



SALPINGO-OÖPHORECTOMY WITHOUT PEDICLE.
Left ovary and tube have been excised and wound closed by suture. Right ovary and tube separated from broad ligament, long end of suture left for closure of wound.

of an inch apart, and care is taken to bring the edges of the wound in as close apposition as possible, so as to leave little or no raw surface. If the broad ligament is friable, care should be taken not to make so much traction on the suture as to cause laceration of the tissues. The uterine tissue may also be lacerated by excessive traction on the suture. All or part of the ovary may be left if not diseased. The appendage of the other side is treated in like manner.

The suture above described has controlled the hemorrhage perfectly in every case in my experience. If the uterus is so diseased as to be likely to interfere with perfect recovery, it is amputated through the cervix, after the uterine arteries have been ligated, and the stump is closed by continuing the glover's suture from one broad ligament to the other. The only objection to suture of the broad ligaments is that it takes more time than is required for ligation of the pedicles, but this does not obtain in cases where the pedicles are very broad, or where the broad ligaments are friable.

The advantages of suturing the broad ligament are: (1) No pedicle is made. It is well known that the pedicle is liable to retract and cause hemorrhage, to become adherent to intestines, to remain painful, and to be a focus for infection and suppuration. (2) The entire tube and ovary can be excised. (3) Very little tissue is included in the suture and very little tension is made on the broad ligaments. (4) Little or no raw surface remains to form adhesions or cicatrices. (5) Absorbable sutures may be used without fear of hemorrhage. (6) Blood-vessels are ligated while in normal location, which protects against retraction and hemorrhage.[1] (7) When the broad ligaments are friable hemorrhage can be more easily controlled by suture than by ligature *en masse*. (8) Bleeding points in the posterior surface of the broad ligament are more accessible after suturing than after the broad ligament has been puckered by ligature. After the use of the ligature *en masse*, swelling frequently occurs about the pedicle or in the broad ligament, as the result of hemorrhage, or

[1] C. B. Penrose, *American Journal of Obstetrics*, August, 1895.

inflammatory exudate. So far as I know this has never occurred after the employment of this method of suture.

I have employed this method of suture in every abdominal salpingo-oöphorectomy which I have made since January, 1895, and I think the results have demonstrated its advantages. In only one case has bloody uterine discharge occurred after entire removal of the uterine appendages, and this was in a case of double pyosalpinx closely following abortion. A recent curettage in this case showed the endometrium to be thickened by glandular inflammation and stopped the hemorrhage.

Atrophy of the uterus has occurred, with the above exception, in all the patients I have examined several months after the operation. Many of the operations were, however, performed on hospital patients whom I have not had an opportunity to examine after they left the hospital. Of about seventy-five patients, two died soon after the operation from, I believe, profound septicemia, which existed at the time of operation.

Polk and Penrose advocate an operation similar in principle to the one described, though somewhat different in technic. Polk says:[1] "Using silk or catgut, as one may elect, the ovarian vessels are ligated *en masse* just outside the ovary and the fimbriated end of the tube. The tube is then dissected out as far as the cornu of the uterus, bleeding points being caught up and ligated as one proceeds, with catgut or fine silk. The ovary is next cut away, the bleeding points being treated in the same manner. As in all abdominal operations it is a prime object to present as few raw surfaces as possible, the raw surface left by removal of the tube and ovary should be covered up, if possible, by stitching back the round ligament to the line of the broad ligament, immediately below that just occupied by the tube; the tube should be amputated at the cornu by an oblique incision from behind, forward and inward, thus leaving a surface which can be apposed to the round ligament. . . . It will have been noticed that even in the radical removal of the appendages ligation of the tube is avoided. This is a measure to which the writer attaches great importance, because he believes that many of the recurrent symptoms to which the patients are often subjected are due to the presence of the ligature upon the tube." Penrose[2] has described an operation as follows: "The first ligature is passed through the broad ligament near the pelvic wall, securing the proximal portion of the ovarian artery. The second ligature may include the Fallopian tube if there is no disease of the isthmus, or it may be passed immediately beneath the tube if it be necessary to exsect the tube from the uterine cornu. With the ligatures thus placed, the tube and ovary may be completely and safely removed. Usually there is no bleeding from the portion of the broad ligaments between the ligatures. Any bleeding which does occur can be readily controlled by separate ligatures. It is not necessary to place both ligatures before cutting away the ovary and tube. The first ligature may be placed about the aproximal portion of the ovarian artery and then the infundibulo-pelvic ligaments may be cut, bleeding from the distal end being controlled with forceps. This will enable the operator readily to bring the ovary and tube through the incision, and to ligate the ovarian artery at the uterine cornu."

In the same number of the *American Journal of Obstetrics*, page 283, I briefly described this operation for the removal of the ovaries and tubes without a pedicle and presented a specimen.

V. CONTROL OF HEMORRHAGE.

Hemorrhage from separation of omental adhesions is immediately controlled by fine catgut or silk sutures, or ligatures. If in the separation of intestinal adhesions, hemorrhage occurs from laceration of the intestinal wall, the rent is closed at once with fine catgut sutures, which will stop the hemorrhage. General oozing from slight abrasions of the intestine, can easily be controlled by firm pressure with hot sponges or gauze. Active bleeding frequently occurs, while firm tubo-ovarian adhesions are being separated. This can usually be sufficiently controlled by firmly packing hot gauze or sponges against the bleeding surface. Should the hemorrhage persist, a forceps should be placed on the broad ligament external to the ovary and tube on the side from which the hemorrhage occurs, in order to secure the ovarian artery, and a forceps should be placed on the broad ligament at the cornu of the uterus to secure the uterine artery. Hemorrhage from the separation of uterine adhesions may be controlled with suture, but if after both appendages have been excised. hemorrhage occurs from numerous or extensive abrasions, hysterectomy should be performed. Hemorrhage from the pelvic wall may be checked with fine sutures or gauze packing.

VI. DRAINAGE.

The term "drainage," as here considered, refers to removal of fluid, to quarantining necrotic or

[1] "Clinical Gynecology," 1895, p. 579.
[2] *American Journal of Obstetrics*, August, 1895, p. 223.

infected tissue, and to tamponnade for hemorrhage. Drainage should be employed : (1) When general septic peritonitis exists. (2) When septic matter has escaped into the general peritoneal cavity. (3) When necrotic or septic tissue is left in the pelvic cavity. (4) When hemorrhage exists which cannot be readily controlled by ligature, suture, or temporary pressure. (5) When an intestine has been so injured that fecal fistula is liable to occur.

The vaginal route of drainage should be almost invariably employed in preference to the abdominal route because: (1) The most dependent portion of the abdomen is drained. (2) Drainage is downward. (3) The surface which usually requires drainage is in, more or less, close proximity to the vagina. (4) The danger of hernia is diminished. (5) Fewer adhesions must of necessity occur, as the abdominal cavity is kept more free from exudates. (6) The danger of infection of the abdominal wound is diminished.

In my experience, better results have been obtained with the vaginal than with the abdominal route of drainage. The statement frequently made that the vagina can not be made clean enough to drain through, is not substantiated by the results obtained from vaginal operations. Drainage through the abdomen is preferable: (1) When the surface to be drained is near the abdominal incision. (2) When the opening into the vagina can not be readily made on account of adhesions posterior to the uterus. (3) When septic disease of the vagina or vulva exists. Combined abdominal and vaginal drainage may be employed when indications for drainage by both routes are present. Gauze is the best material for vaginal drainage in almost every case.

I employ the following technic in the application of vaginal gauze drainage : Before the sponges which protect the intestines are removed, the patient is lowered from the Trendelenburg to the horizontal position, and the point of a long sharp-pointed scissors, curved on the flat, is pushed from the vagina into the peritoneal cavity posterior to the uterus. The blades of the scissors are then separated and withdrawn. With one finger inserted from the vagina, and one from the abdomen, the opening is dilated to the desired size. If the surface to be drained is large, the end of a piece of gauze, two feet wide and folded, is then carried into the abdominal incision out through the vaginal opening, caught by the finger or forceps and pulled out over the perineum. As little of the gauze as is required to cover the necrotic or infected tissue, or to stop hemorrhage is left in the peritoneal cavity. The punctured wound will not usually bleed unless the tissue is indurated. If hemorrhage occurs it may be necessary to pass a suture and ligate, or to use forci-pressure through the vagina. Little or no more time is required for the application of vaginal gauze drainage than for abdominal drainage.

When the slightest indication for drainage exists, I believe the vaginal gauze drainage should be employed because it is almost impossible for it to do harm, and it may do much good. If active drainage is required, the end of the gauze should project over the perineum so as to get siphonic action, and the end of the drain should be covered by a pad of gauze which should be changed as often as it becomes moist. The drain should be removed at the end of twenty-four hours if employed for hemorrhage, otherwise it may be left *in situ* for forty-eight or seventy-two hours. The operator should keep his hands scrupulously clean while inserting the drain, as well as in all the other steps of the operation. When general peritonitis exists, or when a large amount of infective fluid is present in the general peritoneal cavity, tubal drainage alone, or in conjunction with the gauze drainage, should be employed through the vagina.

VII. TOILET OF THE PERITONEUM.

With the patient in the horizontal position, all blood or serum is thoroughly removed by sponging out the pelvic cavity. The sponges covering the intestines are removed, and if necessary the pelvis is again cleaned by sponging. The abdominal cavity is not irrigated unless general peritonitis exists, unless a large amount of fluid has escaped among the intestines, or unless tubercular peritonitis is present. If the escaped fluid has been confined to the pelvis, it should be removed by sponges rather than by irrigation, because of the danger of carrying infection into the general peritoneal cavity. If irrigation is employed, a normal saline solution at the temperature of about 100° is probably the best to use, and the amount of fluid used should be sufficient to insure thorough cleansing. The fluid should be allowed to escape through the vaginal incision, as, after irrigation, drainage is a necessity. The omentum is then turned down over the intestines to prevent adhesions of the intestines to the abdominal incision. The omentum will possibly become adherent to the wound, but this is less objectionable than adhesions of the intestines to the wound. When the patient is exhausted from hemorrhage, and when the abdominal cavity is

not infected, as occasionally occurs in cases of rupture of ectopic pregnancy, it is a good practice to leave blood in the cavity or fill it with normal saline solution for absorption.

VIII. CLOSURE OF THE ABDOMINAL WOUND.

The accidents that most frequently follow closure of the abdominal wound are suppuration and hernia. The former now seldom occurs. The causes of suppuration are infection from contact with pus or septic tissue, from faulty technic in the closure of the wound, from the employment of drains, and from meddlesome after-treatment of the wound.

When the wound becomes infected by contact with pus or septic tissue, it should be thoroughly sponged with sterilized water, or with weak antiseptic solution, not strong enough to produce necrosis of the tissue. I have seen cases in which, I believe, suppuration resulted from the use of solutions of 1–1000 bichlorid of mercury. When the wound has been infected, buried sutures should be avoided on account of the danger of suppuration, the wound should be closed by sutures, which include all the layers of the abdominal wound, and the aponeurosis should be accurately coaptated by the additional use of quilled sutures. In an infected wound, sutures, such as silkworm-gut, or silver wire, which have no capillary action, should be used. If the abdominal wall is very thick, a drain may be used for a short time between the skin and aponeurosis, or preferably the superficial part of the wound may be left open and packed with gauze for twelve hours, and then carefully closed by tying sutures placed at the time of the operation. The aponeurosis, muscles, and peritoneum are closed, before the packing is inserted, by quilled sutures.

When suppuration occurs in a wound which has not been exposed to septic fluid or tissue, the sepsis must be due to faulty technic in closure.

The use of vaginal drainage in cases which would otherwise have required abdominal drainage, will eliminate one of the principal causes of suppuration in the abdominal wound. Infection may occur from unnecessary changing of the dressings or washing of the wound. When no abdominal drain is used, the gauze over the wound may be changed at the end of twenty-four hours if much soiled, but the wound should not otherwise be disturbed until the time for the removal of the sutures, unless symptoms indicate suppuration. Hernia may result from incomplete primary closure of the wound, from inaccurate coaptation of the aponeurosis, from suppuration in the wound, from the patient getting up too soon after the operation, or from non-use of an efficient abdominal supporter.

Incomplete primary closure of the wound always occurs when abdominal drainage is employed, and is especially noticeable when the Mikulicz drain is used. The abdominal drain is necessary only in exceptional cases, and, I believe, that the vagina offers a better route of drainage than the abdomen in nearly all cases, when considered either from a theoretical or a practical standpoint. When the abdominal drain is used it should be removed as soon as the discharge ceases, and the wound should be closed by tying sutures which were placed at the time of the operation, if the cavity drained is not a suppurating one, or does not contain necrotic tissue.

Incomplete coaptation of the aponeuroses probably always occurs to a greater or less extent when the "through and through" suture is used. When the wound has not been infected, the peritoneum should be closed with a fine continuous catgut suture, and the fascia, external to the recti muscles, should be accurately coaptated. "This is the most important step in the closure, as in this fascia lies the strength of the abdominal wall, and in this proper reunion lies the protection against hernia." [1]

When the wound is aseptic this should be accomplished by means of buried sutures, or by quilled sutures. Either catgut, kangaroo tendon, silkworm-gut, or silver wire, may be employed for buried sutures. It has not yet been determined which of these suture materials is preferable. I believe that the muscles should not be sutured, because to suture them causes an unnatural union which has no material strength and which must interfere with their action. Suture of the muscles also increases the pain in the wound. It causes atrophy from including parts of the muscles in the sutures and from union of muscle-fibers. The strong aponeuroses in an infected wound may be accurately coaptated by the quill suture. The skin and subcutaneous tissue are united by silkworm-gut sutures.

HYGIENIC PRINCIPLES IN THE PREVENTION OF EAR DISEASES.

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The prevalence of acute and chronic nasopharyngeal affections under local climatic conditions of rapidly varying temperature and humidity, the frequency and danger of complicating

[1] "American Text-book of Gynecology," p. 79.

diseases of the organ of hearing, and the common neglect of hygienic measures, which are, for the greater part, simple and effective, offer sufficient reason for my submitting a rew remarks on the subject. Under normal conditions of health, the organism may give shelter to many microbes, some of them pathogenic in nature. The latter are held in check by the vital antisepsis of the blood, the energy of the cell, and the power of resorption and metabolism of the organs. A further defense is afforded by the impermeability to germs of the normal epithelium, and by the antagonism existing between different species of microörganisms or their respective physiological products.

The commonest path of aural infection is from the nasopharynx through the Eustachian tube. Under normal conditions, the reflex action of swallowing causes the renewal of air in the tympanic cavity. If this automatic ventilation be disturbed, the consequences soon become unpleasantly apparent in a diminution of hearing. The physiological ventilation may become a source of danger, to which are added other and more violent reflex movements, such as coughing, sneezing, or vomiting. These reflexes overcome the muscular bar of the Eustachian tube and cause a sudden rise of air-pressure, which, though but momentary, is strong enough to force into the middle ear some material from the nasopharynx, as mucus and any microörganisms that may be present. As evidence of this, the frequency of middle-ear complications in epidemics of acute and subacute nasopharyngeal affections may be cited; but without any mechanical assistance, pathogenic organisms may traverse the tube and produce the tympanic complications not unfrequently observed in pneumonia, typhoid, scarlet fever, and other infectious diseases.

Less frequently, but no less certainly, the blood carries the agent of infection to the affected organ of hearing, or inflammatory products may be transported and become lodged in the terminal blood-vessels of the middle ear, as is not unfrequently the case in septic endocarditis and in pyemic conditions. Finally, we must not forget that a possible, although rare, mode of infection is offered by the presence normally, as observed by Zaufal, of pathogenic germs in the tympanic cavity, which may, under favorable circumstances, become virulently active. Besides these internal paths, the ear may become affected from without, as it most frequently is in disease of the external ear, and as complications of deeper parts. Injuries and inflammatory processes of the auricle and meatus may affect only the external ear and the adjacent structures, or may cause general infection; again, the inflammatory process often extends to the barrier between external and middle ear, with destruction of the drum membrane and rapid development of middle-ear inflammation. Even without perforation of the tympanic membrane, the pathogenic process may penetrate, by means of blood and lymph channels, to the deeper structures.

A knowledge of the methods of aural infection should guide us in our therapeutic and prophylactic measures. First and foremost is the importance of a proper hygiene of the nasopharynx, in health as well as in disease. The care of the mouth and pharynx is so habitual, and its importance so obvious, that it might seem superfluous to call attention to the necessity of keeping the teeth clean and the recesses of the mouth and throat free from all foreign matter. Unfortunately this is not the case. These manipulations are frequently neglected through ignorance, or they are performed at irregular intervals and in an incorrect and inefficient manner. A perfunctory brushing of the teeth on rising in the morning, and so-called gargling with a few drops of a mouth-wash are considered by many sufficient for the subsequent twenty-four hours, and the products of fermentation and decay, with the microörganisms, are left undisturbed for a whole day. Besides this, the conditions for decomposition are made more favorable by the conditions of the mouth and nasopharynx during sleep. The rational deduction is that the most careful cleansing of teeth should take place at night and again on rising, for in spite of all such measures, the buccal cavity will be found full of microörganisms in the morning, and perhaps a less careful toilet of the mouth should follow each meal. If these simple, hygienic measures were systematically and energetically applied, especially in childhood, we might hope for fewer complaints of foul breath, weak stomach, or decayed teeth; not only this, but the mucous membrane of the mouth and pharynx would become toned and strengthened against many infectious diseases. The most important prophylaxis in any epidemic is the care of the buccal cavity. Lavage of the throat is so carelessly done as to be in most cases practically useless. The fluid at most rinses the mouth, and does not reach the back of the pharynx, the tonsils, etc. Besides this, the method is a false one and its results a failure. Tough mucus cannot be removed in this way, even if the fluid did reach the deeper parts. A more rational pro-

cedure is the pharyngeal douche. A small amount, not a mouthful, of fresh, cold water should be used. The chin is now raised and the fluid allowed to run slowly back by its gravity, without any attempt at gargling. When the fluid reaches the lowest part of the pharynx, it causes a sudden, brisk, reflex contraction of the pharyngeal muscles, which, assisted by a forward inclination of the head, is amply sufficient to empty the contents of the mouth. This simple process may be repeated three or four times. By this method the lower portions of the throat are reached, and above all, the energetic spasmodic muscular action effectually dislodges all tough adherent mucus. Where there is a tendency to catarrh or sore throat, antiseptic solutions may with advantage be substituted for pure water. In addition to these local measures, we must consider the value of regular exercise, fresh air, cold baths, pulmonary hygiene, and breathing exercises.

However we may be disposed to neglect these procedures in health, the presence of local or general disease increases our responsibility and the necessity of rational hygienic measures. Nasal or pharyngeal catarrh, whether idiopathic or symptomatic of measles or scarlet fever, is frequently complicated by acute middle-ear affections. The disease brings with it the necessity of freeing the nasal cavity at frequent intervals, and the simple blowing of the nose, if violently or carelessly done, as is usually the case, may be a source of danger. It should be done as seldom as possible, as violent blowing only adds to the existing irritation and congestion. If this is not sufficient, the mucus must be made less consistent and removed by an alkaline douche. Both nostrils should never be closed at once, and no hairpin or similar utensil should be used. Therapeutic measures, which occasion a local rise of air-pressure, such as Politzerization or the use of the Eustachian catheter, are distinctly contraindicated during the acute stage of such affections, especially if there is complaint of pain in the ear. The pain often indicates that there is already a congestion or inflammation in the tympanic cavity, and these procedures may drive the infecting matter into the recesses of the mastoid with the most serious results. We must be on our guard in the case of infants and little children, and consider at all times the possibility of ear complications when restless sleep, peevishness, and crying might suggest intestinal parasites, colic, teething, or what not. Frequently a discharge from the ear is our first intimation of the real state of affairs. In such cases, as in the case of apathetic or comatose patients, in typhoid, pneumonia, meningitis, and similar diseases, the ear-drum should be frequently inspected. In chronic affections of the nasopharynx, aural complications are so frequent as to be the rule. Chronic hypertrophic catarrh, with adenoid vegetation in the pharyngeal vault, is notable in this respect. Digital exploration is usually the simplest and most effectual diagnostic method, as posterior rhinoscopy may be impracticable with unruly or frightened children. The local action of adenoid hypertrophies may cause a direct affection of the Eustachian tube by occlusion of the pharyngeal ostium and consequent retraction of the drum by rarification of air in the tympanic cavity, or their presence may cause repeated attacks of catarrh, which sooner or later extend to the middle ear. The breathing is affected markedly, and hearing not infrequently diminished. Although forced to operate in most cases, much may be done in mild forms by insistent local treatment. Direct application to the nasal passages of weak nitrate of silver solutions or of iodin-glycerin, five to ten per cent., act well in almost all cases, when used at an early stage. The reaction may be severe, however, and for this reason it is advisable to apply the solution to one passage only in each sitting. The cotton pledget should be tightly wound on an angular carrier or forceps, and there should not be enough fluid to allow any dripping into the pharynx. Two or three days should elapse between each application. The nasal douche is decidedly inapplicable here, as in all cases of nasopharyngeal obstruction fluid easily enters the Eustachian tube, and may be aspirated into the middle ear. Massage of the nasal mucous membranes has been advocated, and good results claimed for it by several authors.

The use of a nasal douche should be governed by a few simple, but stringent rules, if it is to remain a beneficial measure and not become a source of danger. The bulb of the fountain syringe, if this is used, should be directed horizontally backward, not upward, the bag hung not more than one foot above the nasal passage. The head should be inclined forward slightly, with the mouth open, and the douche fluid slightly warmed. The nasal douche-cup or spoon is even better than a fountain syringe, or the fluid may simply be snuffed up from the palm of the hand.

The necessity of removing hypertrophic tonsils is self-evident as a prophylactic measure against ear disease. Similarly, congenital fissure of the hard and soft palate should be treated.

A consideration of all the possible causes of

aural affections brings us finally to the communication from without through the external auditory meatus. Inflammation of the auricle or meatus may be propagated directly by extension or by transportation in blood- or lymph-channels. The custom of piercing the lobule for wearing of ear-rings has been responsible for many cases of this nature. A greater menace lies in the careless or incorrect cleaning of the meatus. The majority of instruments used for this purpose—ear-spoons of metal, rubber, ivory, or bone—are of doubtful utility, or absolutely dangerous. Small sponges on holders are a source of infection, rather than of asepsis or cleansing. The ear-spoons, especially those of metal, easily cause abrasions of the epithelium and small erosions, which may become infected and result in furuncles or phlegmonous inflammation. The use of an ear-douche is but little better. The epithelium is soaked and macerated, and when dry becomes a source of irritation. Oil, glycerin, and other substances of a similar nature are inappropriate, on account of their tendency to become rancid. The most rational method of cleaning, which is perfectly thorough, may be accomplished by using a small tuft of absorbent cotton, not a large pledget, tightly wound about a blunt and smooth wooden tooth-pick, the end being left loose and fluffy. In case the cerumen is hard, the cotton may be lightly dipped in soap-water or moistened with a drop of ether. Another source of serious inflammation of the ear is the presence of foreign bodies in the external meatus, and more particularly unskilful or violent attempts at their removal. Instruments are never to be used in these cases, especially when the foreign body is hard or brittle, as they invariably fail to grasp and push the offending object still deeper into the ear. Our sovereign remedy here consists in syringing, and is effectual in nearly all cases, unless the foreign body is very voluminous or has entered the ear with great force. Under these conditions extraction under a general anesthetic may be our only expedient. Injuries of the ear not infrequently produce a rupture of the drum, whether caused by a blow or entrance of a foreign body, or by sudden change in atmospheric pressure. Here, too, the original lesion may be less dangerous than misguided therapeutic efforts. All washing, syringing, or instillations are contraindicated, at least directly after the injury. If the rupture can be seen, a loose tampon of absorbent cotton is all that is needed. In case there has been a free hemorrhage and our view is obstructed, the blood-clot may be gently wiped away with cotton on a holder. The patient should be cautioned to avoid all procedures which would cause a rise of air-pressure in the tympanic cavity, and especially to use no force in blowing the nose. The use of syringes is unequivocally condemned. Prompt healing will generally take place under the aseptic blood-clot, if this be left undisturbed. Even after a discharge has begun, much more can be accomplished by dry-cleansing by mopping with cotton or gauze, than by flooding the passage with fluid. The warning against syringing must be especially marked in case of serous discharge, where traumatic communication with the cranial cavity may reasonably be suspected.

Another source of danger, although of a less serious nature, is the common tendency to alleviate toothache or facial neuralgia by the use of hot oil, pledgets of cotton dipped in chloroform, oil of cloves, or other counter-irritants placed in the auditory canal.

In health we need also guard against the mechanical injury of the heavy surf at our sea-side baths. Complaint of fulness and pressure in the ear after bathing, with diminution in hearing, is usually due to the swelling of cerumen by the action of the water. The symptoms promptly subside when the wax has been syringed out. Even in case of an old perforation of the drum, the patient need not be deprived of the hygienic benefit and pleasure of sea-bathing. We need only suggest plugging the meatus with cotton, which has been partly dipped in oil. If we neglect this, the entrance of sea-water may be followed by an acute empyema of the mastoid, or by the relapse of an old discharge.

NEPHRITIS IN CHILDREN.[1]

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Much more attention has been paid to the consideration of this disease in late years than heretofore, but even now there is very little to be found in the literature bearing upon the subject; this is particularly the case in primary nephritis occurring in children.

A nephritis may be primary or secondary, the former occurring infrequently. It, however, does occur, though denied by some authors. It may be secondary to any of the exanthemata, perhaps more frequently as a sequel to scarlet fever, rheu-

[1] Read before the Kentucky State Medical Society, Lebanon, Ky., June 10, 1896.

matism, erysipelas, acute and chronic intestinal diseases, vaccination, and pneumonia, the active causative agent in these diseases being either of primary bacterial origin or the result of the elimination of their toxins by the kidneys.

The lesions of a nephritis may be classed as a "descending nephritis,"[1] the essential change being glomerular and epithelial, due to chemical, bacterial, or toxic agents. The other form may be called the "ascending" variety, due to invasion from the urinary organs below. This affects first the papillæ, and, by means of the lymphatics, the parenchyma is invaded, the change being toward the cortex.

In the interstitial form there is an accumulation of cells between the tubules; the kidney is large, moist, whitish, and opaque. Clinically, this form is a result of the exanthemata, and may give rise to few symptoms. The glomerular form is much more frequently found as a result of scarlet fever than the former. The lesion is chiefly a proliferation of the capsular epithelium, with hyperplasia of the connective tissue. This form is well called capsular glomerulo-nephritis. Councilman states that the acquired or primary form of nephritis differs but little from that in the adult, though children are less prone to the circulatory disturbances found, especially in the chronic form, in the adult. In the text-book by Ashby and Wright, it is stated that the lesion in acute nephritis of childhood is of the croupous pneumonia type; the blood-vessels are engorged, choking of the tubules results, and there occurs an exudate of the liquor sanguinis and blood-corpuscles. The inflammatory changes, failing to be relieved, secondary changes occur, the most important being a glomerular and peri-glomerular nephritis.

A very valuable contribution to the etiology of this disease has recently been published by Dr. A. Jacobi,[2] in which many valuable suggestions are made as to the causation of this ordinarily unlooked-for disease of the newborn.

While chiefly secondary in early infant life, the nephritis may be primary, or at least occur without any cause being patent, and as the child approaches puberty, partake more of the form found in adult life. It is a much more common disease than is generally thought, and would be recognized oftener if more systematic examination of the urine of infants and children was made. Urine can always be obtained, as catheterization at this age can readily be done. Exposure to cold or wet being the cause of a sudden change in the circulation, may be an exciting cause of the primary form, Lassar having proved the causation of interstitial and parenchymatous inflammation by sudden refrigeration.

[1] Gaillard's *Medical Journal.*
[2] *New York Medical Journal*, January 18, 1896.

Under this head may be mentioned sea-bathing and swimming in fresh-water streams, the long exposure to the cold water being often an exciting cause little thought of. This, Danforth[1] states, is the case in adults, but not in childhood. Money[2] states that "spontaneous Bright's disease must be admitted." Rotch[3] says that, with the exception of its occurrence in scarlet fever, diphtheria, and measles, the disease is not frequent.

In no disease of childhood are the symptoms so varied as in nephritis. They may be so trivial as to pass unnoticed, especially when there is neglect in the examination of the urine. In well-marked cases the symptoms are pronounced and aggressive; the younger the patient, the more prominently the symptoms may point to the brain, or perhaps to the gastro-intestinal tract, or to the lungs, thus obscuring the diagnosis of the true nature of the disease.

The onset generally is sudden, preceded by a chill and a rise of temperature to 102 or 103°; the pulse is very rapid, as a rule, and the tension is high. Convulsions may precede active symptoms or perhaps supervene later. Edema occurs early, and its presence should at once excite suspicion; at first the dorsum of the feet, the ankles, and legs are affected, then the face, general anasarca occuring in some cases. Blindness may frequently be seen, due to a retinitis, either simple, hemorrhagic, or colloid. Fox[4] writes that in the hemorrhagic and colloid varieties of retinitis albumin is not found in the urine, this is especially so of the hemorrhagic variety, which is considered a forerunner of a non-albuminuric Bright's disease. The urine is scanty and high-colored, though there may be suppression, but catheterization will generally obtain enough urine for an examination.

Albumin in large quantities is usually found; microscopic examination shows granular, epithelial, and blood-casts, and blood-cells. Anemia is prominent; the skin, which is of a peculiar waxy look, is dry and hot. Cough is not an infrequent symptom, and may be distressing if pulmonary edema develops to any extent. Pain, heaviness, or a sense of discomfort in the back may be complained of by older children. Headache is also prominent. Restlessness and disturbed sleep, involuntary cries, convulsions, and even coma are not uncommon symptoms; strabismus and dilated pupils are found frequently.

Of all the diseases of childhood, nephritis demands

[1] "American Text-book of Diseases of Children."
[2] "Diseases of Children."
[3] *Pediatrics.*
[4] MEDICAL NEWS, May 23, 1896.

the most prompt, vigorous, intelligent, and careful treatment. Three essential rules in the treatment must be recognized, viz.: (*a*) Relieve the kidneys of the extra work of carrying the transuded serum from the tissues, as well as the retained products of tissue metamorphosis usually excreted by the kidney and retained because of their damaged state; (*b*) endeavor, by intelligent medication and diet, to prevent further damage to the diseased organs; (*c*) restore the kidney to its normal condition.

In meeting the first indication, resort must be had to the compensatory emunctories, the skin and the bowels, and at no age can we rely upon them more than during early life. Calomel is indispensable. It stimulates the liver to action, and by the increased flow of bile the contents of the bowel are rendered more fluid and the elements to be excreted more soluble in the blood, thus proving less irritating to the kidneys. The salines are of great service as hydragogues.

Hot-air baths must be relied upon for their diaphoretic action, as pilocarpin is very uncertain and not to be depended upon. The best method of applying heat is by using an apparatus which will supply hot air under the bedclothes. This can be used continuously, as it does not cause prostration. Liquid ammonia acetatis is an efficient remedy in the stage of convalescence, acting beneficially upon the kidneys and the skin. The high tension in the arteries can be combated more efficiently by blood-letting than otherwise, its beneficial effect being seen upon the pulse, the nervous system, and the kidneys by lowering the blood-pressure.

A very valuable agent is water, given, perhaps, plain after filtration or boiling, as young children take carbonated waters with reluctance. Given *ad libitum* and at regular intervals, if the patient does not call for it, it acts as a diuretic, without causing any irritation. If refused by the mouth, it acts well as enema if large doses are given.

The following history is reported as being illustrative of the subject under discussion:

D. M., aged eleven years, an inmate of the Masonic Widows' and Orphans' Home, resident at the Home nine months; had always been a healthy child. On October 12, 1895, she reported to the nurse because "she was getting fat in the face." There had not been any outbreak of contagious diseases at the Home, and the patient's skin was perfectly free from any evidences of disease. She had been well up to the time of admission to the infirmary, and the edema was noticed now for the first time. She was put to bed, but was not reported as sick until the following day. At this time there was marked edema of the face and of the feet and ankles. A specimen of her urine was ordered saved, and she was put on milk diet pending the examination.

14th. At 8 A.M. she had a general convulsion, followed in the next three hours by five more. In the interval between the convulsions there was nystagmus and twitchings of the muscles about the eyes. There was one more convulsion during the day, but the only nervous manifestations during the night were the twitchings as above described. She was very restless when awake, and complained of great pain in the head. There was complete blindness at this time, and Dr. W. B. Pusey, Visiting Oculist to the Home, was called in to make an examination. He reported that the examination was very unsatisfactory, owing to the nystagmus and restlessness; no satisfactory view of the fundus was obtained. When the child had been dismissed, however, he found the fundus sound and the vision normal.

The pupils were well dilated and equal. The edema was quite marked, especially about the face, eyes, and lower extremities. Skin was hot and dry; pulse 160, full and bounding; the maximum temperature was 103°. Thirteen ounces of urine were passed in the twenty-four hours. It was high-colored, examination showing three-fourths per cent. albumin by volume, blood-casts and blood-corpuscles.

As soon as possible after the convulsion she was given ten drams of a saturated solution of Rochelle salts at intervals, and one-quarter of a grain of muriate of pilocarpin in equally divided doses, four hours apart, but no effect, either upon the skin or the salivary glands, was produced. Eight grains of calomel were given during the twenty-four hours, with a large movement resulting. She vomited twice after administering the calomel. She was put in the hot-air bath at this time, but no effect was noticed until the following day.

15th. Passed a restless night, twitching about the eye being noticed frequently. Pulse 160, and of high tension. At this time phlebotomy was done, about one ounce of blood being removed from the right median basilic vein. The effect of this withdrawal was almost immediate; the pulse fell to 104, there was less tension, and the patient seemed brighter, having taken no notice of the phlebotomy. Eight grains of calomel were given during the rest of the day, twenty-two ounces of urine were passed, and she had three movements, as a result of several large rectal injections given through the day.

16th. Rested well; complains of sore throat; coughs a great deal; examination of the chest proved negative. Vision returning slightly; can distinguish large objects and begins to recognize faces. Examination of the urine showed about one-third albumin by volume, a few granular casts, blood-corpuscles, and kidney epithelium. Given

one ounce of the saturated solution of Rochelle salts at intervals and one teaspoonful of liquor ammonia acetatis every three hours. Passed twelve ounces of urine and vomited three times.

17th. Rested well; edema rapidly subsiding; still coughs. Passed twenty-three ounces of urine and had two watery stools. Specific gravity of urine 1015, with some albumin, but much less than at the last report.

18th. Slight sweat in the morning. Passed forty-one ounces of urine.

19th. Cried nearly all night with pain in throat; nothing pathological visible. Passed thirty-seven ounces of urine; had three watery stools. Put on tincture ferri chloridi, six minims every three hours.

20th. A necrotic area of mucous membrane found on the right soft palate, extending down to the tonsil, about half an inch square. This is exquisitely painful and has a foul odor. Persulphate of iron applied every two hours. Passed twenty-four ounces of urine.

21st. Throat much better. Passed twenty-seven ounces of urine.

The following is a list of the amount of urine passed in the next few days: 22d, thirty-two ounces, specific gravity 1014, some albumin and blood-corpuscles; 23d, thirty ounces; 24th, forty ounces; 25th, forty-two ounces, albumin, granular casts, and kidney epithelium; 26th, forty-four ounces; 27th, fifty-two ounces; November 1st, urine clear and free from albumin.

Under tonic treatment with muriated tincture of iron and nourishing diet, the little patient improved rapidly and was dismissed from the infirmary in ten days, well. It is interesting to note that during the succeeding month she was one of ninety to have German measles, a mild attack, the urine remaining normal throughout.

The following points are of interest in connection with the above history: Pilocarpin muriate, a perfectly fresh preparation, to the total dose of one-quarter of a grain, did not have the slightest effect upon the child's skin or salivary glands, and did cause some depression of the circulation. Hot air had little effect in inducing elimination by the skin until it had been kept up for at least twenty-four hours. Calomel proved an efficient aid in elimination by the bowel, with the aid of Rochelle salts, which were borne by the stomach better than the calomel. Blood-letting was of the greatest benefit, not only upon the heart, reducing it from 160 to 104, and lessening the blood-pressure; also ridding the blood of a quantity of toxins at once. This is a remedy that should not be forgotten.

The case illustrates the remarkable recuperative power of the child, not only in surviving such overwhelming poisoning of the system, but the kidneys regaining their former integrity.

THE DISINFECTION OF BOOKS BY VAPOR OF FORMALIN.

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A GREAT deal has been written recently concerning the use of formalin as a preservative, antiseptic, and disinfectant. Investigators unite in acknowledging that it possesses these properties, while they differ in opinion as to the degree of efficiency, especially in the case of disinfection.

Dr. John S. Billings, Director of the Laboratory of Hygiene, University of Pennsylvania, proposed to the writer the testing of the efficiency of formalin vapor as a disinfectant for books, and also for rubber and surgical instruments. The writer wishes to here express his thanks to Dr. Billings, and also to Dr. A. C. Abbott, First Assistant, Laboratory of Hygiene, University of Pennsylvania, for their kind advice and timely suggestions during the course of this investigation.

We would naturally expect that books, particularly those of public libraries, passing through many hands under various conditions, would need disinfection; for at times they are handled and read by persons afflicted with infectious diseases, and may therefore serve as channels through which the disease may be disseminated. Nor is this now a matter of conjecture for Du Cazal and Catrin[1] have shown that books may be the vehicles of contagion. The results of their experiments were positive for the diphtheria bacillus, streptococcus, and pneumococcus, although negative for tubercle bacillus and bacillus of typhoid. There are numbers of cases of scarlet fever in which the source of infection is reasonably believed to be a book or letter.

In some places, as in parts of England, the only remedy for infected books has been destruction by fire. This waste of books, often valuable, may be averted if disinfection can be otherwise thoroughly accomplished. Messrs. Du Cazal and Catrin propose as a means of disinfection, the sterilization of the books by the autoclave, with the exclusion of bound volumes and board covers, which are injured by this treatment. Miquel,[2] in his efforts to obviate this difficulty, used a strip of cloth 15 to 20 cm. wide, attached at the ends to rollers, around one of which the cloth was wound and dipped into a solution of formalin, whose specific gravity had been raised from 1.075

[1] *Annales de l'Institut Pasteur*, Decembre, 1895, p. 865. "De la contagion par le livre."

[2] *Annales de micrographie*, Novembre, 1894, p. 588. "Contribution nouvelle à l'étude de la désinfection[par les vapeurs d'aldéhyde formique."

to 1.2 by the addition of calcium chlorid crystals. This cloth was spread directly beneath a frame or rack holding the books, with the edge of the leaves downward. Cloth, rack, and books were then covered by a large jar, and at the end of twenty-four and forty-eight hours were found to be sterile. Van Ermengem and Sugg[1] found that in a closed vessel, sterilization was effected in twenty-four hours by sprinkling the leaves of an infected book. They found that books were not disinfected in a closed chamber after twenty-four hours if a weight of two kilograms rested on the books; but they obtained positive results in twenty-four hours if a vacuum was produced, and then air, saturated with formalin, admitted. In their experiments with elevated temperatures, these investigators found books were disinfected at a temperature of 60° C. in twenty-four hours with formalin. As a result of their researches, Van Ermengem and Sugg consider books as difficult of disinfection. Lehmann[2] agrees with them in this conclusion.

It was our intention to test as simple a method as possible, and yet one that was efficient. It would not be a practical matter to retain for several hours a temperature as high as 60° C. (140 F.), especially for large spaces. The following experiments were accordingly conducted at room temperatures varying from 19° to 31° C. (66.2° to 87.8° F.). The vapor was obtained by simple evaporation, and not by the burning of methyl alcohol, nor was addition made to the formalin of calcium chlorid or any other substance. The solution used was received from the firm of Bender & Hobein, Munich and Zurich, and had the specific gravity 1.084.

The action of formalin upon the anthrax spore has been determined by others. As neither *B. anthracis* nor its spore are apt to occur in books, this organism was not employed in our experiments. Virulent cultures have been used of *B. typhi abdominalis*, *B. diphtheriæ*, and *staphylococcus pyogenes aureus*, all of which are likely to occur in books.

The following was the method pursued: To avoid injury to the books by the cutting of the leaves, a sheet of paper was given a single fold, and between the two leaves thus formed, was placed a piece of paper 2 cm. square. After sterilization by dry heat of the sheets with their enclosed squares, they were placed in a book at desired pages, and the squares smeared with a twenty-four-hour-old bouillon culture of the organism in question. Drying of the culture was accomplished in from one to two hours, by placing the book in the incubator, 37° C. (98.6° F.). At this point, control cultures were made from the squares. The book was then placed under a bell-jar of known capacity. No weight rested upon the books except in few cases, when other light books were on top. Sometimes the books were stood on end, again they rested on the side, always closed. A measured amount of formalin was placed in a shallow glass dish under the bell-jar, and allowed to evaporate—the surface of evaporation varying from 26 to 70 sq. cm. After removal from the exposure to formalin, the books were allowed to stand for various periods of time protected from dust. At several dates after the exposure, portions of the square were placed in bouillon at 37° C. (98.6 F.), and observed daily for some time.

The questions presented were:

1. Can books under simple conditions be disinfected by the vapor of formalin?

2. What is the maximum amount of air per c.c. of formalin that may be used and yet the books be sterilized in a limited time—as twenty-four hours?

3. Will a shorter exposure than twenty-four hours suffice?

4. Will an increase in the length of time of exposure counterbalance a decrease in the amount of formalin employed?

SERIES I.—Length of exposure, twenty-four hours. Books of from 150 to 870 pages, mostly octavo books of 200 to 400 pages. Dates of experiments extending from March 11 to June 1, 1896. Controls all positive; g=growth; o=no growth.

c.c. of air to 1 c.c. of formalin.	Designation of experiment.	B. typhi abd.		B. diph.		Staph. p. aur.	
		No. of tests.	results	No. of tests.	results	No. of tests.	results
137	a	4	o	4	o	4	o
150	b	2	o	2	o	2	o
300	c	1	o	1	o	1	o
300	d	.....	.....	1	o	1	o[1]
375	e	.....	.....	.....	.....	2	o
375	f	2	g	2	g	2	g
400	g	.....	.....	1 2	o o[1]	.....	.....
500	h	.....	.....	.....	.....	3	g

[1] In these three tests a growth was obtained a few hours after removal from the vapor, but succeeding trials from the same square after two days or more were negative. This raised the question as to whether the vapor of formalin had condensed between the leaves and thus given a prolonged exposure after removal. Accordingly, parallel experiments were made, differing only in that the books were opened and exposed to air at the inoculated places as soon as removed from the bell-jar. The same result as previously observed made it clear that it was a case of weakened vitality in the organisms.

[1] *Archives de pharmacodynamie*, 1894, vol. i., fasc. 2-3. "Recherches sur la valeur de la formaline à titre de désinfectant."

[2] *Münchener medicinische Wochenschrift*, 1893, No. 32. "Vorläufige Mittheilung über die Desinfection von Kleidern, Lederwaren, Bürsten, and Büchern, mit Formaldehyd."

SERIES II.— Greater proportions of air, and mostly longer exposures. Octavo books of 150 to 400 pages. Controls all positive.

c.c. of air to 1 c.c. of formalin.	Designation of experiment.	Time of exposure.	Typhoid		Diph.		Aureus.	
			tests	results	tests	results	tests	results
600	i	25 hrs	.....	.....	.....	.....	2	g
800	j	26 "	.....	.....	2	g	.....	.....
800	k	19½ "	.....	.....	1	g	2	g
1000	l	41 "	.....	.....	2	g	2	g
900	m	5 "	2	g	2	g	.....	.....
400	n	21 "	3	o	2	o	2	o
							1	g
530	o	5½ "	.....	.....	.....	.....	3	o

SERIES III.— Exposures one hour. Octavo books of 176 to 600 pages. Controls all positive.

c.c. of air to 1 c.c. of formalin.	Designation of experiment.	Typhoid.		Diph.		Aureus.	
		tests	results	tests	results	tests	results
400	p	.....	.....	.....	.....	1	g
						2	o
350	q	2	g	.....	.....	.....	.....
350	r	.....	.....	.....	.....	2	g
300	s	.....	.....	.....	.....	1	g
						1	o
300	t	.....	.....	.....	.....	2	o
250	u	.....	.....	1	o	1	o

SERIES IV.—Exposures fifteen minutes. Octavo books of 130 to 732 pages. Controls all positive.

c.c. of air to 1c.c. of formalin.	Designation of experiment.	Typhoid.		Diph.		Aureus	
		tests	results	tests	results	tests	results
400	v	2	g	.....	.....	.....	.....
350	w	.....	.....	.....	.....	2	g
300	x	.....	.....	.....	.....	1	o
300	y	2	o	.....	.....	.....	.....
300	z	2	o	.....	.....	.....	.....
250	aa	.....	.....	1	o	1	o
250	bb	.....	.....	2	o	2	o

These results demonstrate that 1 c.c. of formalin to 300 c.c. of air will thoroughly disinfect books in fifteen minutes, while with an exposure of one hour no greater amount of air can be permitted without vitiating the result. If the exposure be extended to twenty-four hours, disinfection failed to be obtained with 375 c.c. of air to 1 c.c. of formalin. In a few cases, experiments *g*, *n*, *o*, *p*, positive results were obtained where a larger amount of air was used, yet sterilization is not sure with more than 300 c.c. of air to 1 c.c. of formalin.

Experiments were also conducted to determine the detrimental action if any on instrument and rubber. No injury was perceptible to instruments nor to any form of rubber after an exposure of twenty-four hours in air saturated with vapor of formalin. These articles were not, however, subjected to repeated exposures for a large number of times.

The white deposit spoken of by some authors as an objectable product, appeared only to a slight degree on the glass plate where the dishes containing the formalin stood, and it did not show in the least on the books, rubber, instruments, nor on the interior of the bell-jars.

CONCLUSIONS.

1. Books can be disinfected in a closed space, simply by vapor of commercial formalin by using 1 c.c. of formalin to 300 c.c. or less of air.

2. The vapor of formalin is rapid in its disinfectant action. The effect produced in the first fifteen minutes is practically equivalent to that observed after twenty-four hours.

3. An increase in the amount of air to each c.c. of formalin is not counterbalanced by an increase in the length of time of exposure.

4. In case the disinfection has been incomplete, the vitality of the organisms has been so weakened that they survive only if transferred in a few hours to media, suitable for their development.

5. The use of vapor of formalin is not detrimental as far as observed in any manner to the books, nor is it objectionable to the operator beyond a temporary irritation of the nose and eyes, somewhat similar to that produced by ammonia.

CLINICAL MEMORANDA.

A REPORT OF TWO UNUSUAL SURGICAL CASES.[1]

By J. C. ROCKAFELLOW, M.D.,
OF PHILADELPHIA;
RESIDENT PHYSICIAN OF THE GERMAN HOSPITAL.

CASE I.—Dislocation of the radius forward and ulna backward at the elbow-joint.

H. N., aged fifty-three, male, was working on a scaffold which gave way, causing him to fall about sixteen feet. He struck upon the palm of the left hand, the arm being slightly flexed. He was brought immediately to the hospital, where he was seen about twenty minutes after the accident occurred. The patient had intense pain in the elbow-joint, which was somewhat swollen. The arm was slightly flexed and pronated. The olecranon could be plainly felt posterior to the humerus, the coronoid process occupying the olecranon fossa. The head of the radius was displaced into a position anterior to the humerus at the edge of the coronoid fossa. Any attempt at flexion, extension, or supination of the forearm caused intense pain. No fracture of any bone could be determined.

Reduction was attempted by flexing the forearm upon the arm, using the knee as a fulcrum and at the same time making extension. The bones apparently slipped

[1] I am indebted to Dr. G. G. Ross for the opportunity of reporting these cases, which occurred during his service at the German Hospital Dispensary.

into place, but on examination, the forearm was found to be pronated, and could not be supinated without causing great pain. The ulna occupied the normal position, but the head of the radius still rested on the anterior surface of the humerus. By slightly flexing the forearm and making pressure downward over the head of the radius, the latter slipped into place, making flexion, extension, supination, and pronation quite easy, and accompanied by little pain. The rest of the treatment was that carried out in cases of simple dislocation at the elbow-joint. The patient recovered with a perfectly movable joint.

The infrequency of the above dislocation makes it one of interest. The first cases of posterior dislocation of the ulna and anterior dislocation of the radius at the elbow-joint were reported by Michaux and M. Bulley in 1841, each of these gentlemen reporting one case. The next case reported was by M. Meyer in 1880. These are the only uncomplicated cases recorded (Hamilton). A similar case was reported by Dr. Erskine Mason, but he could not satisfy himself that a fracture of the external condyle of the humerus did not also exist.

Of the four preceding cases, two were not diagnosed until two weeks after the injury was received, and attempts at reduction were not successful, as the head of the radius continued to occupy its normal position.

Case II.—Comminuted fracture of the scapula involving the spine.

J. B., twenty-seven years of age, male, while riding a bicycle over Belgian blocks, caught the front wheel between two sewer plates and was thrown about ten feet. He turned completely over, striking the right scapula on one of the stones. The patient was seen soon after the accident occurred.

On examination, no marked deformity was noted, the pain and swelling were slight, but movements of the affected side were limited and painful. The patient could place the hand of the affected side on the opposite clavicle, but could not place it upon his head, a symptom mentioned by Gross as being present in a similar case. Any attempt to place the arm at right angles with the body caused marked pain. The slight build of the patient favored satisfactory examination.

On passing the fingers along the spine of the scapula, the fracture could be felt extending perpendicularly across it, about two and a half inches from the inner border. By grasping the spine on either side of the fracture, each half could be moved separately, and crepitus was distinct. On examining the outer edge of the scapula, a third fragment was found slightly separated from the outer upper fragment, the line of fracture extending transversely and communicating with the perpendicular fracture. The displacement of the fragment was not marked, but, by grasping it, distinct motion and crepitus were felt.

The dressing employed in this fracture was a firm pad in the posterior part of the axilla, a compress over the scapula, the arm in the Velpeau position, all of which were retained by strips of adhesive plaster. Over this was placed a Velpeau bandage. The displacement after the fracture had united was slight, the inner fragment being displaced upward about one-fifth of an inch. The displacement, together with the callus, could be plainly felt at the seat of fracture. The smaller fragment of the outer half showed no displacement.

The above fracture is quite rare, Hamilton having treated but six cases of fracture of the body of the scapula. Various hospital statistics show that fracture of the body of the scapula occurs once in about every four hundred fractures treated, and as most fractures of the body are due to gunshot injuries (Agnew, Ashhurst, Hamilton, and others), the percentage of cases otherwise injured is very small.

A CASE OF SUPPURATIVE CHOLECYSTITIS, WITH RUPTURE OF THE GALL-BLADDER AND GENERAL PERITONITIS, COMPLICATING TYPHOID FEVER.[1]

By HENRY B. ANDERSON, M.D.,
of Toronto, Can.;
Professor of Pathology, Trinity Medical College; Pathologist to Toronto General Hospital.

John S., aged sixty-seven, builder. Admitted to Toronto General Hospital, 8 P.M., Monday, September 16, 1895. Patient had been well and working at his trade in Detroit until July 6, 1895, when he was taken quite suddenly ill—chills, fever, vomiting, diarrhea, with general abdominal pains. The chills recurred daily for some time. He was treated for malaria and recovered from his illness, returning to work August 1st, although still feeling rather miserable. He remained at work only a few days, when he became worse, although still continuing to go about. He had chills recurring, as a rule, twice daily, headache, fever, diarrhea, vomiting, and a good deal of abdominal pain on the right side, in the hypochondriac region. He was again treated for malaria, taking quinin until cinchonism was produced, with no beneficial result. He stated that he had been examined before the Mississippi Valley Medical Association, then meeting in Detroit, and malaria was diagnosed. No blood examination was made. Several other men working at the same place as the patient were taken with an illness somewhat similar, and two of them died. As he was gradually getting worse, he left Detroit for his home in eastern Ontario, but on reaching Toronto he was feeling so ill that he entered the Toronto General Hospital, under the care of Dr. Davison, by whose kind permission I report the case. As Dr. Davison was out of town at the time, I took charge of the case and examined the patient's blood for malarial parasites a short time after a chill, but no plasmodia were found. Another examination was made next day, before a chill, and the following condition found: Red blood-corpuscles, six million (Thoma-Zeiss). They were regular in shape. No malarial parasites were found. The hemoglobin was slightly reduced (Fleischel's hemometer and Gower's hemoglobinometer). There was, however, a marked leucocytosis apparent without an actual count. The increase was in the polynuclears. This examination excluded the presence of malaria and pointed rather to some acute inflammatory process. The patient's condition at this time was as follows: He was strong and

[1] Read before the Toronto Medical Society, November, 1895.

well-developed physically and mentally. Temperature was ranging from normal to 102°; pulse 86 to 100, soft and low tension; tongue red, slightly tremulous, with a tendency to dryness; respiratory murmur natural; heart-sounds normal. General aspect of patient was indicative of great suffering. Mind was clear. Abdomen on the right side was full, prominent, and tense; on the left side it was comparatively soft and relaxed. Palpation and percussion produced the most intense pain on the right side, all over the hepatic area in front and behind, and extended some distance below. In no case was this tenderness and pain particularly localized in reference to the liver. On account of the great suffering produced, it was impossible to define the area of hepatic dulness. There was no pain or tenderness in the right iliac region. The left side of the abdomen was quite soft and relaxed, pressure producing no pain. No splenic enlargement could be discovered. There was no eruption on the abdomen or elsewhere. Examination of the urine negative. Diazo-reaction was not tried. No history of gall-stones or previous jaundice could be gotten. Probable abscess of the liver, secondary to some intestinal lesion, was diagnosed. The intense pain and the fulness on the right side continued, and a *localized* swelling made its appearance beneath the ribs opposite the ninth costal cartilage, and extended below it. On the fifth day after entering the hospital the intense pain and swelling simultaneously disappeared. The patient experienced great relief, and felt comparatively comfortable. This was soon followed, however, by *general* abdominal pain and tenderness, though not very intense. Temperature rose to 102⅘°, and on following day to 103°, reaching normal each morning. The pulse became more rapid—112 to 128—and weaker. The tongue was dryer, skin moist and clammy, and patient had involuntary evacuations of urine and feces. He grew gradually worse, became comatose, and died September 26th, the eleventh day after entering the hospital.

The necropsy was made two hours, *post mortem:* There was a general acute peritonitis, with a considerable amount of brownish-yellow fluid in the peritoneal cavity, apparently bile-stained. Microscopic examination of the fluid showed many polymorphonuclear leucocytes, large flat mononuclear (endothelial) cells, yellowish (bile) pigment, and some short, slightly curved rods with rounded ends.

The small intestines were bound together with recent inflammatory adhesions. The solitary glands were swollen, and there was ulceration of a few Peyer's patches at the lower end of the ileum. The floors of the ulcers were clean and smooth. Liver, weight 1815 grams, soft and passively congested. The cystic duct was obstructed by a number of small, faceted gall-stones. The mucosa of the gall-bladder presented a number of small, ulcerated patches, the tissue between the ulcers being reddened from congestion. On the right side of the gall-bladder, about 4 cm. from the anterior margin of the liver, one of these ulcers had perforated into the general peritoneal cavity. Externally the seat of perforation was adherent to the liver by recent adhesions, the whole gall-bladder was greatly dilated and its walls thin. Spleen weighed 170 grams. Other cavities and organs presented nothing worthy of special mention.

Cultures on blood-serum and in bouillon were made from the peritoneal fluid and from the interior of the gall-bladder. In both cases pure cultures were obtained of a rod-shaped bacterium, short, with rounded ends, and apparently constricted in the center. In places they were united to form longer threads. In morphology they corresponded to the bacillus coli communis or to the bacillus typhosus. The bouillon culture remained alkaline, and the reaction for indol could not be obtained. Unfortunately, other means of differentiating these organisms were not tried. Both the tests applied, however, went to show that the organism was the typhoid bacillus.

To sum up the case: It seems probable that the illness, from which he suffered during July, was typhoid fever, from which he had not fully recovered when he left his bed, August 1st, and this accounts for his feeling worse on going about. The presence of the calculi in the cystic duct and gall-bladder made this a point of lessened resistance. The autopsy records of the Johns Hopkins Hospital[1] indicate that the bile is particularly rich in typhoid bacilli during an attack of the disease. The ability of the typhoid organism to set up local suppurative inflammation in different organs and tissues of the body has also been abundantly demonstrated by competent observers. An inflammatory process was thus set up in the gall-bladder with swelling of the mucous membrane, and this, together with the calculi, produced complete occlusion of the cystic duct with accumulation of the purulent material mixed with bile in the cavity. Ulceration of the mucous membrane occurred, and the tension becoming very great, the sac ruptured at the seat of one of the ulcers, setting up a general peritonitis. The symptoms in the second attack were thus coincident with, and due entirely to, the condition in the gall-bladder and its consequences.

The delayed healing of the ulcers found *post-mortem* could be accounted for by the complication described. The case, apart from its rarity, presents a few points of special interest. It is another instance added to the many cases already recorded of the power possessed by the typhoid bacillus to set up suppurative processes in parts distant from what is usually regarded as the chief seat of the disease—the intestine—the organism being carried by the blood-stream. In a series of cases recently published by Flexner[2] he has shown that this mode of transmission of the typhoid bacillus does occur, giving rise, in rare cases, to an actual septicemia, or producing lesions in distant parts of the body.

From a clinical standpoint, these facts show us the necessity of continually bearing in mind the power possessed, not only by the typhoid bacillus, but, as has also been shown, by most other pathogenic organisms (streptococci, staphylococci, diplococcus, pneumoniæ, gonococcus, bacillus anthracis, bacillus tuberculosis, etc.) of setting up, not only the local lesion with which they are usually associated, but, under certain conditions, often not well understood, by gaining entrance to the blood-stream,

[1] Flexner, *Journal of Pathology and Bacteriology*, April 1, 1895.
[2] "Johns Hopkins Reports," vol. v., p. 343.

and thus producing *general* infection of the system or local trouble in distant parts. In this manner we may get anomalous forms of disease, differing not only in their clinical pictures, but also in their prognosis and treatment, from the usual type.

This case also shows that the absence of polymorpholeucocytosis can only be of use in diagnosing uncomplicated cases of typhoid, and that in certain instances, as in the present, it may actually mislead, rather than assist in making the diagnosis.

MEDICAL PROGRESS.

Division and Immediate Suture of the Left Vagus Nerve.—(Makins, *Brit. Med. Jour.*, May 16, 1896.) In removing a secondary epithelioma of the neck, the left vagus nerve was divided just above the center of its cervical portion. It was immediately sutured. No results were noticeable other than the paralysis of the muscles supplied by the recurrent laryngeal branch. The quality of the voice improved rapidly however, and two months later it was nearly normal. Laryngoscopic examination showed the left vocal cord to be fixed near the middle line, and in phonation the right cord moved up to it. Apparently, after suture of the nerve, the adductor fibers partially recovered, but not the abductor ones.

The operator admitted that the functional cavity of the vagus in this case might have been lowered by long continued pressure by the tumors. In his opinion, however, the case proved that one vagus can be divided without danger, and that after division, at least a partial restoration of function is possible.

Complete Removal of a Pancreatic Cyst.—Eve in the *Medical and Surgical Reporter*, May 9, 1896, describes a case of pancreatic cyst occurring in a negro boy, and which was apparently traumatic in orgin. While asleep, the patient was struck in the abdomen by a falling box weighing fifty pounds. He was confined to bed for four days with postration and great pain. Six weeks later, he noticed an epigastric enlargement which progressed. Four months from the time of injury, the size of the tumor so alarmed him that he sought surgical relief. Eve diagnosed the tumor as pancreatic cyst, on account of its smooth elasticity and the light brown fluid drawn from it.

At operation the cyst contained about a gallon of fluid, and was attached to the omentum, stomach, transverse colon and meso-colon. It was removed and the patient recovered, although the cyst wall was so firmly attached to the meso-colon that the latter had to be torn away from the gut for about eight inches, in order to remove the cyst. The complete removal of a pancreatic cyst has rarely been attempted.

THERAPEUTIC NOTES.

The Treatment of Diabetes Mellitus with Lime.—In addition to observations on the significance of calcium as related to diabetes mellitus previously recorded (see Medical News, June 22, 1895, p. 708) Grube (*Therapeutische Monatshefte*, 1896, No. 5, p. 258) reports a series of fourteen cases, in the treatment of which he employed various forms of calcium, especially a mixture of calcium carbonate, ninety-five parts, and calcium phosphate, five parts. Three of the cases were of the severe type of the disease in young people, and in these, while the excretion of urine remained unaffected, the subjective condition improved with increase in weight. In the remaining eleven, which were of mild type in elderly persons, while no good effect was observed, no harm resulted.

Infectious Diseases Treated by Artificial Serum.—In an article in *La Presse Médicale*, June 3, 1896, Bosc discusses the merits of intravenous injections of artificial blood serum, in infectious diseases and toxic conditions. The fluid employed contained sodium chlorid 7 grams, and sodium sulphate 8 grams to 1000 grams of distilled water. It was sterilized by boiling, and injected into a vein at a temperature of 38° to 39° C. Before injection about 8 ounces of blood were drawn, and then 2 liters of the serum were injected slowly into a vein, during 15 or 20 minutes.

In cholera patients, the effects were striking. Thus a patient who was pale, cyanotic, rigid, voiceless, with a scarcely perceptible pulse, was transformed before the injection was finished. The cyanosis and clamminess disappeared, and the pulse became of good volume at 105. "It was as if a corpse was coming back to life."

The injections were followed almost invariably by a chill and high fever up to 40° C. (104° F.), often accompanied by vomiting and diarrhea. These symptoms subsided in a few hours, and on the following day there was a decided improvement in the general condition which concluded in a speedy recovery.

This treatment calls to mind the ancient humeral theories of disease, and the efforts of the physicians of that time to get rid of the humors in the blood by blood-letting and purgatives. These means have only a limited action. The treatment by blood-letting and intravenous injection of artificial serum, followed as it is by exudation into the alimentary canal causing vomiting and purging, merits the name which has been given it of lavage of the organism.

Bosc has had no personal experience with this treatment in typhoid fever and septicemia, but from what he knows of the results others have obtained, he looks for great benefit from its use in these diseases.

The Galvanic Current in Lead-Colic.—According to Lagrave and Regnier (*Le Prog. Méd.*, May 23, 1896), not enough importance is attributed to the use of the galvanic current in lead-colic. When the positive pole was applied by means of a broad zinc electrode to the lower dorsal vertebræ and the negative pole in a similar way to the epigastrium, a continuous current of five to ten milliamperes was found to relieve the pain entirely in fifteen to twenty minutes. With a current of forty milliamperes, obstinate constipation from lead-poisoning was overcome, and a free passage of feces obtained in ten minutes in a case which had resisted the action of drugs.

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THE LEGITIMATE TREATMENT OF ALCOHOLICS IN BELLEVUE HOSPITAL.

IN connection with the unfortunate notoriety that has attended the efforts of the Charities Commissioners to establish a nostrum cure for alcoholism, it may be of no little interest to know what was already being done in that Hospital, not only to relieve alcoholics temporarily, but to develop and establish a cure. It has long been known that about one-half of the patients admitted to the insane pavilion of Bellevue were alcoholics. Before a satisfactory diagnosis could be made as to the mental condition, it was, therefore, necessary to sober up these patients. For the past few years a systematic effort has been made by Dr. Austin Flint, who was on duty in the insane pavilion, to formulate some treatment that should be more far-reaching than the long-established use of bromids and other sedatives. Strychnin has become the drug *par excellence* for these cases, and its effect is so striking and so decided in cases of alcoholism that it has come to be regarded as a specific antidote to alcohol-poisoning. Its immediate effects, when given hypodermically, are most satisfactory and surprising. In the form and dose in which it is now administered, it will clear up nearly every case of alcoholism in from twenty-four to forty-eight hours. The formula used by Dr. Flint is as follows:

Nit. Strych.	grs. viii
Acid. Salicylic	grs. iv
Alcohol	℥ i
Water	℥ iii

Make up antiseptically.
℥ xv = $\frac{1}{16}$ of a grain of Strych.
Sig. ℥ 15 hypo. two or three times daily.

In the alcoholic wards proper Dr. Charles L. Dana has instituted similar investigations and has reached conclusions very similar to those of Dr. Flint. In addition to the use of strychnin, however, Dr. Dana endeavors to throw about the secondary treatment of these cases the strong mental suggestion of a "cure." His custom is to select, for the cure treatment, from the convalescents of an acute attack of alcoholism only those persons who have reasonable intelligence, and show real evidence of sincerity in their desire to reform. He does not hesitate to say that the suggestive and moral influences thrown about the "cure" are borrowed from the idea of the Keeley and other alcohol cures of the country. A more extended account of Dr. Dana's method will be found in another column of the NEWS.

MELANOTIC TUMORS.

IN the last number of the *Deutsche Zeitschrift für Chirurgie*, vol. xliii, p. 498, EBERMAN reviews the literature of melanotic tumors. It is now nearly a century since Laennec named and described these growths, and we are almost as much in ignorance of their nature now as then. Formerly many cases of melanotic carcinoma were spoken of, but now almost all of the pigmented tumors receive the name sarcoma. The writer does not infer from this that there has been any change in the character of the tumors, but simply that the microscope has revealed to us that in most cases their structure resembles that of the sarcomata. But that is largely a question of nomenclature. As the melanotic tumors are nearly all of the alveolar type of sarcoma—a tumor which stands in the border-line between sarcoma and carcinoma—having the alveolar arrangement of the latter, while its cellular elements seem to place

it among the sarcomata. Thus, among the thirty cases of which Eberman had personal knowledge, only four were distinct carcinomata—all of them being of the rectum. Two of the sarcomata were also rectal, while two had their origin in the mucous membrane of the jaw, two sprang from lymph glands, and the remaining twenty were all situated in the skin.

Owing doubtless to their marked characteristics, melanotic tumors have often been used for transplantation experiments upon animals. As long ago as 1843, Klencke succeeded in transplanting such a tumor from one horse to another. Others have had similar successes in inoculating one animal with a tumor from another.

A more interesting experiment was performed by Lanz a few years ago. The infusion of bits of melanotic tumors of the skin, brain, liver, and spleen of a man, was injected into the spleen of a guinea-pig. The health of the animal was not at once affected, but he died six weeks later with an accumulation of pigment in almost every part of his body, so that Lanz felt sure there was a new formation of pigment.

Interesting as this experiment is, it is not sufficient to prove that an animal may be inoculated with a malignant tumor from man, and thus far all attempts in this direction have failed. Equally futile have been all efforts to cultivate artificially the germs and parasites which from time to time have been seen (?) by various observers in malignant tumors. So that the etiological value of such germs and parasites is still purely a matter of speculation.

What an eloquent testimony is this to the cost of human knowledge, that the labor of hundreds of painstaking investigators for nearly a century has reached only these few facts concerning the nature and cause of melanotic tumors.

A NEW SPECIALIST IN A NEW SPECIALTY.

The following letter, which for pure naïvete, colossal egotism, and brutal assassination of the "United States language," has never been outdone, is the latest contribution to the "Healing Art Made Easy." The reading of the first paragraph amused us, the second disgusted us, and at the end we were prepared to say with Shelley, "Adieu to egotism; I am sick to death of the name of self."

Dear Sir: Having settled as a physician in Detroit, and it being the custom, in making such an announcement as is appended hereto, to accompany it with a sketch of one's medical study and experience, permit me to say that I took lectures at Jena, Strassburg, Heidelberg, Göttingen, and Halle, and that at the end of the fifth year I received my diploma in medicine and surgery, and graduated from the latter university, where I had been a voluntary assistant of the late Richard von Volkmann. After ten years successful practice in Germany, I came to this country, for which I had conceived a great admiration during a trip to the World's Fair in 1893. Permit me also to announce that I confine my practice strictly to dermatology and surgery, and to consultations in these matters, thus avoiding that somewhat suspicious (in this country) name of specialist (*sic*).

I pay special attention to orthopedy, a science which, in the last few years, has made just as wonderful progress as surgery, as a whole, after the important discovery of Dr. Josef Lister. This progress was due chiefly to Friederich Hessing, who gave to orthopedy a series of apparatus so perfect in their functions that Dr. Albert Hoffa, in the latest addition of his well-known work on orthopedic surgery, recommends the Hessing apparatus for every occasion.

I use the Hessing apparatus exclusively for all my patients. The results obtained by this method of treatment are so favorable, that I can boldly affirm that up to the present time there has been no other kind of treatment that could successfully compete with this one. The early walking around of a patient with a broken leg, so favorably commented on of late, is an easy matter with a Hessing's apparatus.

The manufacture of Hessing's apparatus is a difficult process, and the proper adjustment is attended with even more difficulty. Therefore, it is necessary in nearly every case, to have the patient for at least three weeks at my office-residence.

It was a long time before I found the proper material and the right kind of skilful mechanics; two items exceedingly necessary to produce a good Hessing apparatus. This, together with the wish to speak the United States language fluently enough to converse without difficulty, is the reason I have not come earlier before the medical profession.

Yours very respectfully,

————, M. D.

We are accustomed to a certain amount of breeziness and brusquerie from some of our Western fraternity, and we were not entirely unprepared for this blast, for it is but a few weeks since we were favored with a similar but a more

carefully worded circular-letter from a certain New York specialist; but there is in this simple letter of the former voluntary assistant of the illustrious Volkmann an unreserved expression of sentiment and thoughts, and likewise hopes, without regard to conventional rules, which really aghast us.

A man who confines his practice to dermatology and surgery, and who uses a Hessing apparatus exclusively for all his patients is a genius; but a genius who has a form of neurosis which the unlettered call insanity. Think of the brilliant results that must follow the treatment of a case of acne rosacea in full bloom with a Hessing apparatus!

We congratulate Mr. F. Hessing who has thus had his name associated with Lister, the immortal, and we commiserate Dr. Albert Hoffa, who recommends the apparatus for every occasion.

We appreciate the compulsion, and the modesty, which has made our correspondent hide his light in the western city so long; "to speak the United States language fluently enough to converse without difficulty," is a praisworthy ambition, and it is well worth patient waiting, for its realization. It is most unfortunate, however, that our Teuton confrère who murders it so unfeelingly and barbarously on attempting to write it, did not wait a decade or two longer before he essayed to speak it.

We are not at all convinced that the erstwhile modest Herr doctor, who has conceived such a strange liking for this country of ours, has yet really found the proper material and the right kind of skilful mechanics for the manufacture of this dermatological and surgical necessity which he considers so essential for us to have. In fact, we believe that he has not. They exist, *par excellence*, in that country where he practised with such signal success for ten years, and we hope that he will not delay his return to them. The profession can spare him, and really it is more than likely that surgeons will be content to cure fractures in the old-fashioned way, with complete success, without further instruction.

If we can in any way assist the profession of Detroit in ridding themselves of this specialist our concurrence is at their call.

ECHOES AND NEWS.

The French Surgical Society.—The tenth session of the French Surgical Association will meet at the Paris Faculty of Medicine, on Monday, October 19, 1896, under the presidency of M. Terrier. The two following subjects will be discussed: "Surgical Therapeutics of Club-foot," and "Treatment of Genital Prolapsus."

The American Electro-Therapeutic Association.—The sixth annual meeting of this Society will be held on Tuesday and Wednesday, September 29 and 30, and Thursday, October 1, 1896, in Allston Hall, the Studio Building, on Clarendon street, Boston, Mass. Dr. W. H. White, 222 Marlborough street, Boston. Mass., is the vice-chairman of the committee of arrangements.

Self-Respect More Valuable than Position.—Dr. James G. Kiernan of Chicago, informs us that after an editorial service of nearly ten years upon the *Medical Standard*, he has now severed his connection with that journal, because of the insistence, "by the publishers, upon intruding nostrum advertisements and the conversion of the journal into a 'write-up' organ for nostrums and allied performances."

Swedish Hospital Projected in Brooklyn.—The fact that a Norwegian feels insulted if mistaken for a Swede, is well known. The Swedes of Brooklyn evidently prefer segregation from their old-country neighbors as well; for they deem the Norwegian Hospital in South Brooklyn inappropriate, and have raised nearly $2000 as the nucleus of a building fund for a Swedish hospital. They hope to raise the remaining amount necessary to their purpose by means of a fair. The certificate of incorporation has been filed in the county clerk's office.

American Association of Obstetricians and Gynecologists.—The ninth annual meeting of this Society will be held at the Hotel Jefferson, Richmond, Va., Tuesday, Wednesday, and Thursday, September 22, 23, and 24, 1896. The proprietors of the "Jefferson" offer special rates to the Fellows of the Association, their families and guests, as well as to any physicians who come to attend the meeting. It is confidently expected that the railways will offer transportation at a uniform rate of a fare and a third on the certificate plan to all in attendance.

The Hardin County Protective Association.—In Hardin County, Ky., there has been formed a Life Insurance Examiners' Association. It includes *every physician in the county*, and many others whose "rides" take them into the county. They will meet and discuss the scientific and financial questions that affect the insurance of human lives. They have also resolved that they will insist upon a fee of five dollars for each examination made for the companies. If this plan works well, it will be because the hearts of Hardin County beat as one, and there are no backsliders.

A Sacrifice to the Cause of Science.—Dr. William H. Park, who is superintendent in charge of the Bacteriological Laboratory of the New York City Board of Health,

and who, by his editorial association with the NEWS, has kept its readers posted in regard to the status of bacteriological investigation, is suffering with typhoid fever. Dr. Park had been experimenting for the Health Department with a view of discovering a typhoid antitoxin similar to the diphtheria antitoxin. It is supposed that some of the typhoid germs got on Dr. Park's hands, and were transferred to his food, or drink, and thus swallowed. His condition is considered favorable for recovery.

For the Prevention of Blindness in South Carolina.—The following are the essential features of the law of 1896, in South Carolina, relating to the care of infants having diseases of the eye: "Be it enacted by the General Assembly of the State of South Carolina, That should one or both eyes of an infant become reddened or inflamed at any time after birth, it shall be the duty of the midwife or nurse or person having charge of said infant to report the condition of the eyes at once to the local Board of Health of the city or town in which the parents of the infant reside. Any failure to comply with the provisions of this Act shall be punishable by a fine not to exceed twenty-five dollars, or imprisonment not to exceed one month, or both."

The Red Badge of Healing.—Two hundred years before the Children's Crusade, merchants of Amalfi had obtained permission from the Caliph of Egypt to build a hospital in Jerusalem for poor sick pilgrims. The Hospital of St. John became well known, and rich Crusaders gave money to endow it. Others joined its medical or nursing staff, and, without laying down their crusading badge, fought now a new fight against the ravages of disease and death. . . . The Genevan Convention, in 1863, which provided for the protection of the sick and wounded in time of war, commanded the sympathy and adhesion of every civilized nation. It adopted as its badge, a red cross on white ground—the Swiss colors reversed. And so it comes to pass that it is under the old crusading sign that present-day deeds of mercy are done on the field of battle.

Obituary.—Solon F. Bliss, M.D., of Brooklyn, died July 24th, in his forty-seventh year, from diphtheria, after an illness of ten days. He was an American by birth, and had practised in Brooklyn during nearly the whole period of his professional life. He was a graduate of the Albany Medical College in the year 1874.—Edward B. Stevens, M.D., died July 11th, at his home in Lebanon, O., aged seventy-two years. He was Professor of Materia Medica and Therapeutics in the Miami Medical College from 1865 to 1873, and in the University of Syracuse from 1872 to 1877. For seventeen years he edited the Cincinnati *Lancet and Observer*, now the *Lancet Clinic*, and afterward the *Obstetric Gazette*.—The death of Sir Robert Grove, the inventor of the Grove cell voltaic battery, occurred in London, England, August 2d. He was a lawyer by profession, but being temporarily prevented by ill health from following legal pursuits, he turned his attention to the study of electricity. In addition to the battery, which bears his name, he also invented a gas battery.

Nearly Two Thousand Cases of Smallpox.—In reading the paragraph given below, from the *London Lancet*, let it be remembered that the estimated population of the afflicted city is only 41,000. "At Gloucester the fresh cases of smallpox arising in the week ended July 2d were 18 in number, exceeding the total of the previous week by 5. These raised the grand aggregate of cases in the present epidemic to 1983. Summonses last week occupied the bench at Gloucester with reference to the obstruction of officers of the sanitary authority in their efforts to secure the removal of cases of smallpox to hospital. In one instance the father of three children down with the disease refused to permit of their being taken to the hospital, and he was fined £1 and costs, or fourteen days' imprisonment. The defendant, by his counsel, desired to bring forward evidence to show that the hospital was not properly administered, that beds were occupied by more than one case, and so on. The bench ruled against the defendant in this respect, but it is alleged that this is not the first complaint that has been made as to the way in which, in the past, the smallpox hospital at Gloucester has been administered."

The Fever Hospital of Hamburg.—Hamburg affords everywhere evidence that it has profited by the fearful scourge of cholera from which it suffered in the autumn of 1892. The city authorities have established such methodical supervision of water, milk, butcher meat, and almost every article of food, as may be declared sufficient to preclude the possibility of a similar epidemic in future. In their supervision of infectious disease they now follow a plan almost military in its thoroughness, precision, and systematic rule. In different quarters of the town there are disinfection establishments, where one finds not only the means to disinfect articles brought from dwellings in which infectious disease has appeared, but a staff of officials furnished with all the necessary apparatus for the disinfection of the dwellings themselves, and for the instant removal of patients to hospitals where they may be promptly submitted to treatment. In the Eppendorf Hospital, which is the largest modern hospital in Europe, affording ample accommodation for nearly 2000 patients, one finds almost every appliance that recent science can suggest for the treatmeut of disease. In this hospital there were at one period no fewer than 3000 cholera patients during the cholera epidemic in 1892. Usually, however, only a few of the pavilions of the hospital are devoted to infectious disease. The pavilions are, for the most part, in two floors.—*Sanitary Journal.*

The Date of the Meeting of the Mississippi Valley Medical Association has been changed to September 15, 16, 17, and 18, in order to permit the members and their families to take the opportunity accorded by this change to make a pleasant tour through the Yellowstone Park, so justly celebrated as the Wonderland of America. Prominent resident members of the Association in St. Paul and Minneapolis are formulating plans for the Special Yellowstone Park Excursion Trip, to leave on the evening of September 18th, arriving in Mammoth Hot Springs in the Yellowstone Park about noon on the following Sunday, and devoting the following five days to the wonders of this remarkable region, returning to St. Paul Sunday, September 27th. The cost of the trip, including all ex-

penses west of St. Paul, will be announced in due season, but we are authorized to say that the figure will be a very favorable one, and we simply wish, at this time, to make the preliminary announcement of this most enjoyable feature of the St. Paul meeting, so as to give members the opportunity of making their plans in advance to join the party. It is desirable that there be a party of one hundred or more, in order to obtain the benefit of the special train service in both directions. It is urged that all members who desire to join the party should send their names to Dr. C. A. Wheaton, chairman of the Committee of Arrangements, St. Paul, at as early a date as possible.

Electrolized Salt Water as an Antiseptic.—Dr. Julien Proger, chief surgeon of the Asylum for Deaf and Dumb Children at Asnières, near Paris, and member of the Sanitary Council of the Department of the Seine, for four months has been using electrolized salt water as an antiseptic, and has now laid the results of his experiments before the Académie de Médicine. This fluid is used in England as a disinfectant in the Royal Victoria Hospital at Netley, and as a deodorizer for the main sewers of Ipswich. The inventor, from the first, has claimed for it powerful and harmless antiseptic properties, and several years ago supplied Dr. Carlier of Rouen, and Dr. Chantemesse of Paris, with bottles of it for surgical and medical purposes. The opinion they expressed was very favorable, and quantities of it have been supplied to persons suffering from wounds, sore throat, sore eyes, etc. In his communication to the Académie de Médicine he gives a technical report of his clinical experiments, and then sums them up by saying: "The electrolized saline water is neither caustic nor irritating; it may be applied to the mucous membrane as to the skin; it instantly removes all bad odors; stops all putrescent fermentation; kills microbes more effectually and rapidly than any other antiseptic; cleanses and heals fetid wounds and sores, and hastens healing; it is an ideal antiseptic." Dr. Proger further declares that he has used it with success in a case of incipient diphtheria.

Nomenclature of Diseases.—The new "Nomenclature of Diseases," being the third edition of the Royal College of Physicians, has at length appeared in a book of five hundred pages. In 1892 the Committee of Revision was appointed, and their work now appears after four years as a substantial and useful manual. Of the origination of the book the editor of the *Lancet* gives a brief explanation: "The idea that led, nearly forty years ago, to the projection of a nomenclature of disease which should possess a national, or rather an international, character, originated in the Army Medical Department, through whose representations, supported by other of the Hospitals Committee of the Epidemiological Society, the Royal College of Physicians of London was induced, in the year 1857, to undertake the preparation of a Nomenclature of Diseases, on the understanding that it should be subject to periodical revision. The work was commenced forthwith, but in 1858 the meetings of the committee appointed for the work were suspended for five years in consequence of the passing of the Medical Act, and the alterations thereby necessitated in the constitution of the College. The meetings were, however, resumed in 1863, but it was not till 1869 that the first edition of the Nomenclature was published. Among changes made in the present edition in the classification of diseases we notice the restriction of the term 'anthrax' to the disease previously named splenic fever or wool-sorter's disease, and the relegation of the morbid condition carbuncle, which had been previously confounded with anthrax, to a separate category. The disease formerly termed epidemic rose rash is now termed 'Rubella,' in deference to the opinion of physicians specially skilled in the diseases of children, the old name "rötheln" being still retained as a synonym. Diabetes insipidus (polyuria) and tetanus are now, for the first time, admitted as new names in the division of general diseases. The section on nervous diseases has been entirely recast, and so likewise have those relating to diseases of the digestive, respiratory, and integumentary systems. The section on surgical operations has been rearranged, as has also the section on malformations. The enumeration of tumors and morbid growths has undergone fundamental alteration in order to bring this group into harmony with modern classification. The class 'cysts' has been retained in deference to usage and to the needs of registration, although it necessarily overlaps some other divisions of the nomenclature."

SELECTION.

THE STRYCHNIA CURE OF ALCOHOLISM AND OPIUM HABIT.[1]

BY C. L. DANA, M.D.,
OF NEW YORK.

A CERTAIN proportion of the submerged four thousand who pass yearly through the alcohol wards of Bellevue Hospital distinctly and seriously wish to have a treatment given them which will take away their tendency to periodical sprees. Consequently the use of strychnia and the solanaceæ, with certain adjuvant tonics and moral influences is employed in these cases. The drugs selected for use in this "cure," are those which the experience of ten years in the care of these cases has shown me to be most useful.

Selected patients, after having passed through an attack of acute alcoholism, and are convalescent, are allowed to remain two days and take the "cure." The wards of the Hospital are not large enough to permit of a longer stay. Only persons who have reasonable intelligence and who show real evidence of sincerity are chosen.

The following solutions are used:

I. ℞

Strychnia nitrat., . . .	gr. 1-15
Atropiæ sulph., . . .	gr. 1-300
Aquæ distilled, . . .	m x

M. Sig. inject t. i. d.
1st day injection.

II. ℞

Strychnia nitrat., . . .	gr. 1-20
Atropiæ sulph., . . .	gr. 1-200
Aquæ, ...	℥ x

M. Sig. inject t. i. d.
2d day injection.

[1] From the *Post-Graduate*, July 1896.

III. ℞

Tinct. cinchon. comp.,	m xv
" capsici.,	m ½ to m i.
" solan. carolin.,	m ii.
Vini ferri amari.,	ad ʒ i.

M. Sig. Mistur. stomachic., ʒ i. t. i. d. Shake.

Order: One-half to one glass of milk (hot or peptonized), alternating with hot beef tea or broth, every two hours.

IV. 1st and 2d nights, if needed.

℞

Potas. bromid.,	gr. xxxii.
Chloral hydrat.,	gr. xvi.
Tinct. valerian,	ʒ i.
Aquæ,	ad ℥ iv.

M. Sig. ʒ i dose, repeated once, if needed. Shake. Mistur. sedativ.

The patients are given the injections I and II and "stomachic" III, three times a day, with abundant nourishment, washing out the stomach, if neccssary, to help any catarrhal disturbance.

The patient, during the treatment, is made to understand distinctly that he is taking a "cure" with all that that implies, but no mystery is made of its character or of the means used.

After the second day he is perforce discharged. In most cases his craving is gone, but this generally occurs after a debauch. In fact, the natural history of many cases of periodical alcoholism is that craving ceases after the spree for from one to nine months.

On being discharged, the patient is given

V. ℞

Tinct. columbo,	℥ i
" capsici.,	m xv.
" nucis vomic.,	℥ i to ℥ i ss.
Apomorphinæ	gr. 1-3
Tinct. cinchon. co.,	ad ℥ iv.

M. Sig. ʒ i t. i. d. in water after meals.

The patient is told to take this and report weekly. After a month he reports monthly, and is kept supplied with the bottle, which he is told to take the minute any craving develops, and report at once.

By the application of this method to alcoholics, we are able to send out many patients with hope in the future, confidence in themselves, and a staff upon which to lean in this weakness. The same treatment, when applied to patients with the morphin habit, has to be given much longer, and sometimes must be modified, by adding bromids, or gradually reducing the morphin. Dr. Brown, the house surgeon, was able in one case to stop immediately the use of morphin taken to the extent of thirty grains a day. The patient did not suffer in the least.

SOCIETY PROCEEDINGS.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Tenth Annual Meeting, held at Atlantic City, N. J., June 2 and 3, 1896.

FIRST DAY, TUESDAY, JUNE 2d.

THE first order of the session was the address by the President, CLAUDIUS H. MASTIN, M.D., of Mobile, Ala.

A. T. CABOT, M.D., of Boston, read a paper reporting

FIVE CASES OF RUPTURE OF THE URETHRA TREATED BY EXTERNAL URETHROTOMY AND SUTURE.

In all five of his cases the immediate result of the operation was good. In three of them the opportunity was given for examination some years after any dilating instrument had been used. In two of these no stricture was found, and instruments even larger than those that were used immediately after the operation slipped past the point of rupture with perfect ease. In one case, while no interference with urination was noticed, a narrowing of the urethra was found; this narrow point, however, was not of a hard, cicatricial nature, but was so soft and yielding that without the least exercise of force it was rapidly dilated to a good size. The conclusions of the author were as follows: (1) In every case of ruptured urethra, immediate perineal section, with suture of the urethra should be practised. (2) By this procedure not only do we greatly lessen the danger of urine infiltration and abscess, but we also, in a large proportion of cases, may hope to prevent the formation of close intractable strictures. (3) In the early operation, the search for the posterior end of the urethra is much easier than in the later. The hemorrhage from the branch of the artery of the bulb serves as a guide to that end of the canal.

J. WILLIAM WHITE, M.D., of Philadelphia, said that he fully concurred with Dr. Cabot in the general principles laid down in his paper. There was another class of cases, however, in which it was sometimes difficult to decide just what procedure to follow, namely, cases of slight injury, in which there were practically no symptoms excepting a little hemorrhage and perhaps some perineal swelling. In a slight, partial rupture of this character, was the outlook from suturing any better than we could expect from the introduction and retention of a large instrument, and careful urinary antisepsis?

JOHN P. BRYSON, M.D., of St. Louis, said he was entirely in accord with the statement made by Dr. Cabot that an early operation is demanded in a case of traumatic rupture of the urethra. If it could be demonstrated that the lesion in the urethra was transverse or oblique, the indications were to open and suture it. In these cases we often had to deal with a semilunar laceration.

F. R. STURGIS, M.D., of New York, said that when the rupture was slight, the introduction of an instrument to keep the canal patent was often all that was necessary. When, on the contrary, the rupture was extensive, an operation was called for.

ABNER POST, M.D., of Boston, reported a case of ruptured urethra that had recently come under his observation. In that case, the speaker said, the patient would have been better off had an immediate operation been performed and the urethra sutured.

GEORGE CHISMORE, M.D., of San Francisco, coincided with the views of the writer of the paper in every respect, yet he believed that we were a little premature in concluding that a rupture of the urethra, not sutured and left to the healing powers of nature alone, would invariably lead to a particularly intractable form of stricture. He reported a case in which he had an opportunity to examine

the urethra of a patient who had sustained a traumatic rupture of the canal ten years before, and who had had no instrument passed for many years. He found a stricture at the seat of the injury which yielded very readily, admitting, within two weeks, a No. 10 F.

Dr. Bryson said that in the linear form of stricture, which is usually a simple band rising quite sharply from the urethral wall, dilatation will often produce good results and sometimes bring about a radical cure. A longitudinal tear may heal even with the use of a catheter, but in traumatic cases the rupture is usually transverse or oblique.

Dr. Cabot, in closing the discussion, said he agreed with the statement made by Dr. White that it was often difficult to decide whether a case required immediate operation or whether milder measures would suffice. The feeling he had was that if a case which does require early operation is not operated on, it usually does badly. An abscess results together with a cicatricial stricture, which might have been avoided by immediate operation. The actual danger pertaining to such an operation is trivial; it is a much more serious matter if we leave a blood-clot or a tear in the mucous membrane. In case of doubt, therefore, it is well to operate. There are undoubtedly cases where the injury is so slight that we can treat them as indicated by Dr. White, but where there is inability to pass a catheter or a large swelling in the perineum, an operation is necessary. In the case related by Dr. Chismore, the good result was no doubt partly due to the fact that a perineal opening was made, thus preventing urinary infiltration.

JOHN P. BRYSON, M.D., of St. Louis, read the

REPORT OF TWO CASES OF URETHROTOMY WITH TRANSPLANTATION FOR URETHRAL STRICTURES.

The history of the first case was as follows: J. F. was first seen by Dr. Bryson in December, 1891. He had an annular stricture of the urethra, the anterior face of which was situated five and one-half inches from the meatus. The stricture had its origin in a gonorrhea contracted eight years before. It was of the inflammatory variety, resilient, and had repeatedly resisted efforts at dilatation carried beyond No. 14 F. Being convinced that further palliative treatment was useless, the speaker said he opened the canal on December 22, 1891, and disclosed a stricture about one-quarter of an inch in breadth situated at the posterior part of the bulbous sinus, and lined by roughened and inflamed mucous membrane, There was no well-defined margin between the healthy and diseased tissue, the one gradually shading into the other. The membranous portion of the urethra was not much dilated, but was in a state of mild, chronic, purulent inflammation. The urgent request of the patient, who demanded a radical cure of the trouble, which had considerably undermined his health, led Dr. Bryson to disregard the extra risk caused by the posterior urethritis and at once to dissect out the whole of the diseased tissue, going well beyond it on either side, in order to be sure of the mucous membrane. When the dissection was complete, it was seen that the divided ends of the urethra were separated fully three-quarters of an inch, and an attempt to bring them together failed. The base of the wound being composed of spongy and vascular tissue, immediate transplantation of a graft taken from the lining membrane of the prepuce was ventured. This was stitched to the cut ends of the urethra by interrupted catgut sutures. The urethra and bladder were thoroughly irrigated with warm carbolic solution, a catheter passing the full length of the urethra was tied in and the perineal wound propped open with iodoform gauze, loosely placed. On December 24th, the gauze was removed; two days later, the catheter was removed, and on inspection it was found that the graft had taken. The catheter was left out. The patient passed his urine chiefly through the perineal incision. He left the hospital on January 6, 1892, at which time the perineal wound had almost closed. He came under observation again in March, 1894, complaining of a free urethral discharge; after this was cured, a No. 30 F. sound would enter the bladder easily, almost painlessly, and caused no bleeding. On December 26, 1894, the patient reported that he had had no further trouble, and was able to urinate with a full stream. He was again heard from in the fall of 1895, when he wrote that he had remained perfectly well since the operation, urinating with a full stream and at normal intervals, having had no treatment in the interim.

In the second case reported by Dr. Bryson, several attempts at transplantation were made before a successful graft was introduced.

EUGENE FULLER, M.D., of New York, read a paper upon

GOOD RESULTS FOLLOWING URETHRAL RESECTION.

(See current volume of THE MEDICAL NEWS, p. 93.)

DR. WHITE said that in one case of injury to the urethra coming under his observation, a considerable portion of the urethral wall was missing. To fill this gap he used a graft taken from the mucous membrane on the inside of the cheek. He was unable to say whether the graft took successfully or not; the case did well, however, and he was disposed to think that the transplantation was a factor in bringing about the good result.

DR. BRYSON expressed the opinion that in the cases reported by Dr. Fuller—particularly in the last one—the time that had elapsed since the operation was too short to enable him to pronounce them permanently cured. In a case of that character, where an extensive resection was done, it would no doubt take a considerable period of time for the urinary canal to fill up.

DR. CHISMORE regarded the result of grafts within the urethra as very uncertain.

FRANCIS S. WATSON, M.D., of Boston, read a paper entitled

MOVABLE KIDNEY; ITS FREQUENCY; ITS CASUAL RELATION TO CERTAIN DEFINITE SYMPTOMS; THE MEASURE OF RELIEF AFFORDED BY NEPHRORRHAPHY; A NEW METHOD OF APPLYING SUTURES IN THE OPERATION.

He said the pathologist rarely finds movable kidney because, in the first place, he rarely looks for it, and in the second place, as Newman and Kendal Franks have pointed

out, with the body in the dorsal position, the kidney naturally returns to its normal position and is retained there by the solidification of the perinephritic fat after death.

As regards the frequency of this condition, the following figures will prove of interest: Glenard, in 1893, reported that he had seen personally between 1885 and 1893, 537 cases of movable kidney. Lindner, in 1888, asserted that one woman in every five was subject to movable kidney. Edebohls, in 1893, said that he had found 90 cases in a series of 500 women examined.

Upon three symptoms of movable kidney all authorities agree. These are, in their order of frequency: (1) Pain in the loin or abdomen; (2) disturbances of digestion of the character of atonic dyspepsia; (3) neurasthenic or hysterical symptoms. There is one other, which is not often mentioned, but which, when present, is the most characteristic of all, namely, the sickening pain, accompanied by a sense of nausea and faintness, which occurs when the kidney is grasped between the hands or the fingers and thumb. It is just as characteristic, so far as one may judge from the description of patients, as is the peculiar sensation which men feel when the testicle is squeezed. Dr. Watson's method of suturing the kidney in the loin, is as follows: After exposing the kidney by the usual lumbar incision, the fatty capsule covering the posterior surface of the organ is excised and its cut edges are stitched a little distance from the margins of the wound. Two stout chromicized catgut sutures are then passed through two-thirds of the entire length of the kidney, parallel to each other, and through the parenchyma of the organ, at a distance of half an inch from each other. They enter the kidney a little above its lower end and emerge a little below its upper end. Either end of the suture is then passed through the edge of the muscular layer of the wound. Two other sutures are then passed in a horizontal direction through the substance of the kidney, one above and the other below the points of entrance and of issue of the two first sutures, and their ends are also passed through the muscular borders of the lumbar wound. The fibrous capsule is then split throughout nearly the entire extent of the posterior surface of the organ, and reflected, to a very slight extent, toward either side, thus denuding the posterior border of the kidney to the breadth of the little finger. Instead of one end being tied to the opposite end of the same suture, the end of one long suture is tied to the end of the other above, and the same is done below at the points where they pass parallel to each other through the muscular layer. The same is done with the cross-sutures. In this way the danger of the stitches tearing out is avoided. The kidney is drawn firmly into its place and maintained there by the sutures, being suspended as in a hammock.

Dr. Chismore said he had one undoubted case of floating kidney under his observation at present where the condition was discovered by accident; as it had given rise to no marked symptoms, nothing had been done regarding it.

Dr. Cabot said he had operated on quite a number of cases of movable kidney which had given rise to symptoms in different degrees. In some cases the condition gives rise to nervous symptoms, in others to digestive disturbances and in a third class it causes kidney colic. In the digestive, and still more in the latter class of cases, the most favorable results were obtained by operative interference. In his later operations he has adopted the method originated by Guyon, which seems to work very well.

Dr. White said he was quite well satisfied that movable kidney existed far more frequently than many suppose; he was equally well satisfied that too many movable kidneys were being found and operated on to-day. He had never seen a death result from the operation and he had never failed to get at least temporary relief. The diagnosis usually rests between movable kidney and tumor of the gall-bladder, or some other intra-abdominal condition. One of the symptoms to aid us in making a diagnosis of movable kidney is the variation in the quantity of urine passed, due to torsion of the ureter; we may get a history of diminution in the amount passed, followed by a sudden increase and a relief of the symptoms. The symptom mentioned in most of the text-books, namely, percussion over the loin, he regarded of very little importance. The speaker expressed the opinion that most of the symptoms accompanying movable kidney were directly due to the condition itself, and were not of a hysterical character. The traction on the duodenum would account for the gastric phenomena; the obstruction to the outflow of urine would account for the renal symptoms, and the traction on the nerves would account for the nervous manifestations,

Dr. Bryson said that an important reason for operating in these cases was the danger of suppurative lesions. In four cases where he opened the kidney for the purpose of draining a suppurating pelvis, he found the organ much lower down than it should have been. He agreed perfectly with Dr. Watson regarding the characteristic pain produced by compressing the kidney. As regards the proper location of the organ, he had obtained the best results by fixing it in a position where the ureter was neither stretched, nor sufficientiy relaxed to become kinked.

Abner Post, M.D., of Boston, read a paper entitled

POST-CONCEPTIONAL SYPHILIS.

He stated that regarding the possibility of intrauterine infection of syphilis two opinions prevail, one party affirming and another denying its existence, while a third party may be said to consist of those who admit its possibility up to a certain period of pregnancy, and deny its possibility after a date, which is set at various periods by different writers. Those who deny the possibility of such transmission rest their belief upon the well-known relationship between mother and fetus, which does not permit the direct interchange of blood-corpuscles, and upon the probable fact that the contagium of syphilis is carried only by the blood-corpuscles and not by the serum, so that, theoretically, the transmission of the disease through the placenta is impossible. The problem of infection of the fetus during intrauterine life simplifies itself into the question whether pathogenic microbes may be transferred from the mother to the fetus or not. So far as analogy is concerned, different conclusions have been reached by different investigators. The latest opinion on this

subject is to the effect that the microbes of pneumonia and typhoid fever and also the bacterium coli commune pass the placenta and attack the fetus in utero. We are justified in saying that the microbes of certain diseases pass the placenta to infect the fetus, and hence we may infer that intrauterine infection is not impossible in syphilis. To establish the fact that the mother has acquired syphilis during pregnancy and transmitted it to her fetus, Taylor, in the recent addition of his work, lays down a series of propositions which must be proven before the fact of such transmission can be accepted: (1) It must be shown that the father was free from syphilis at the time of conception. (2) The infection of the mother during pregnancy, and her freedom from the disease previously, must be proven beyond doubt. (3) The child must have unmistakable lesions acquired before birth. Dr. Post then reported a case in which the following facts were observed by himself and another physician: The previous good health of the mother was known; the primary sore was seen on the mother during the seventh month of her pregnancy; the secondary eruption occurred at about the average time, and was in full bloom at the time of delivery, two months later; the child was born apparently healthy, or at least without skin-lesions, but a perfectly characteristic eruption, with accompanying snuffles, showed itself at the end of a week; the father accused his wife of having given him the disease when she first showed her local lesions, but afterward confessed that he had acquired the disease outside of marital relations and transmitted it to his wife. The only point where the evidence is assailable is the failure to examine the father as to the truth of his story. Dr. Post reported three other cases where syphilis of the child was thought to be due to inoculation of the mother during the course of her pregnancy, in each case by the father, who had acquired the disease after conception had taken place.

R. W. TAYLOR, M.D., of New York, said that Dr. Post, in his paper, assumed that syphilis was a bacterial disease, and while analogous evidence strongly pointed to such an etiology, yet true scientific evidence to that effect was lacking. The placenta, as a rule, is a good filter, preventing the transmission of the red blood-corpuscles, which seem to be the vehicles of the disease, but if this is so, why have the microbes of syphilis not been found in them? Women who are infected with syphilis during the first few weeks of pregnancy, usually give birth, toward the end of the fourth or fifth months, or perhaps later, to a macerated fetus. When the infection occurs after the fourth or fifth month, they may give birth to either a macerated fetus or a puny, miserable child, which, at birth, shows no evidence of the disease. Admitting that syphilis is due to a microbe which resides in the red blood-corpuscles, and is prevented from coming in contact with the fetus by the placenta, there is nothing to prevent the constant interchange of serum between mother and fetus, and this carries with it the toxins of the disease. In the case reported by Dr. Post, it was a matter of regret that he did not give the father a thorough examination to prove the truth of his statements. Assuming that the father's story was true, and that this was a reliable case of post-conceptional syphilis, it was probably to be attributed to the fact that the placenta of that mother was not competent, that in the utero-placental circulation, owing to a rupture or thrombosis, or some other lesion, there was an interchange of red blood-corpuscles and true syphilitic infection of the fetus.

P. A. MORROW, M.D., of New York, said he had always accepted the theory that syphilis of the mother, acquired after conception, may be communicated to the fetus, and also that the disease may be communicated to the mother by a syphilitic fetus. He had observed a number of cases where the wife was inoculated during pregnancy by a syphilitic husband who had contracted the disease after procreation, resulting in an offspring with unmistakable evidences of syphilis. The theory that the placenta acts as an absolute filter, preventing contact of the syphilitic virus with the fetus, did not, in his opinion, rest on sufficient evidence. He believed that almost all authorities at the present day recognized that the mother may receive infection from a syphilitic fetus, and that the mother, healthy at the date of conception, may afterward contract syphilis and communicate it to her child in utero.

DR. WHITE said there can be no doubt that the placenta acts as a filter. This has been shown experimentally in animals. The speaker expressed the opinion that while the fetus may be influenced by the toxins of syphilis, even to the point of death, he did not credit the theory that syphilitic manifestations in such a child after birth were due to the toxins alone, the placenta having acted as a competent barrier against the invasions of the bacteria themselves. One reason which may account for the rarity of post-conceptional syphilis, probably is that the child, under these circumstances, must undergo a species of vaccination.

DR. STURGIS said it was by no means certain that a bacterium is the etiological factor of syphilis, nor had he ever been able to accept the theory that the placenta acts in the capacity of a filter. It was well known that certain diseases can be transmitted by the mother to the child in utero, which compels us to admit that if the placenta does act as a filter, it is a pretty poor filter after all. Cases of syphilis had been reported where the mother was infected as late as the eighth month, and he expressed the opinion that many similar cases escaped notice for the simple reason that it is exceedingly difficult to get an accurate history of such cases. In a pregnant woman, the primary lesion is apt to escape notice, or may be attributed to some irritation.

DR. POST, in closing the discussion, said that to make a plea for closer observation in these cases was one of the chief objects of his paper.

J. P. TUTTLE, M.D., of New York, reported

TWO CASES OF URETHRAL CHANCRE WITH UNUSUAL SECONDARY SYMPTOMS.

In the first case, the chancre was situated within the urethra about three-quarters of an inch back from the meatus. About ten days after its appearance, the patient complained of general malaise, his temperature rose to 104° F., and he developed an eruption almost typical of

measles, except that it was largely confined to the trunk and upper extremities, and had the copper-colored tinge suggestive of syphilis. There was no bronchial irritation. Later, distinct mucous patches appeared on both tonsils. The eruption lasted about two weeks. The patient improved under specific treatment. The second case reported was one of urethral chancre, followed by muscular pains, which were worse at night, and were so severe in character that hypodermic injections of morphin were necessary to allay them. This patient also developed an endocarditis, and subsequently a meningitis, from the effects of which he had not yet recovered. Dr. Tuttle said he was still in doubt as to whether the muscular pains and the cardiac and nervous symptoms were specific in origin, or due to rheumatism or some other constitutional diathesis.

John A. Fordyce, M.D., of New York, read a paper entitled

CLINICAL AND PATHOLOGICAL NOTES ON SYPHILIS.

The first portion of the paper was devoted to a description of the pathological appearance of the lesions met with in the various stages of syphilis. The second portion was devoted to the subject of *myositis syphilitica*. The author stated that while involvement of the muscles in syphilis is by no means of frequent occurrence, it is met with both in the early and late stages of the disease. Before or during the outbreak of the early eruption, general or localized muscular pains not infrequently occur which simulate rheumatism and interfere to some extent with the movements of the implicated muscles. These muscular pains are transient in duration, produce, as a rule, no evident change in the parts, and readily disappear under specific treatment. In the late secondary or tertiary periods of the disease a diffuse or gummatous myositis has been observed. Both of these forms impair the functional activity of the muscles and lead at times to permanent changes in the parts. The disease seems to show a predilection for certain muscles or groups of muscles, among which may be mentioned the biceps, the flexors of the forearms, the masseter, the sphincter and externus, the deltoid, and the sternocleidomastoid. In diffuse syphilitic myositis the first changes seem to take place in the blood-vessels of the interfibrilary connective tissue, the muscular substance being affected secondarily. In neglected cases, or where the cause is not recognized, atrophy may occur and a complete cure become impossible. A correct diagnosis and early treatment insures, as a rule, a good prognosis. The speaker then reported a case of syphilitic myositis occurring in the second stage of the disease; in this case the left sternocleidomastoid was affected. The case occurred in the practice of Dr. P. A. Morrow. Another case was reported illustrating the gummatous type of the disease. In that instance also the sternocleidomastoid muscle was involved. In the concluding portion of his paper, Dr. Fordyce reported in detail an interesting case of brain syphilis. Numerous photographs were exhibited in connection with the various subjects discussed in the paper.

Dr. Taylor said that Dr. Fordyce's work in the pathology of syphilitic lesions, as well as his description of the muscular lesions of syphilis, were entirely in accord with our classical knowledge. The clinical cases reported, particularly that of brain syphilis, were very interesting.

Dr. Post said that during the past year he had seen two or three cases of myositis which clinically might be syphilitic, but which occurred in individuals in whom no history of that disease was obtainable, nor were there any other symptoms pointing to it.

George E. Brewer, M.D., and Pearce Bailey, M.D., of New York, presented the

CLINICAL AND PATHOLOGICAL REPORT OF A CASE OF CEREBRAL SYPHILIS.

F. M. A., aged twenty-five, single. Was first seen in the autumn of 1892. Family history negative. Aside from a moderate amount of neurasthenia the patient had alwas enjoyed fair health. At the time of his first visit he complained of headache, sore throat, deafness, ringing in the ears, and general malaise. Upon examination, an indurated ulcer was found on the penis, with enlarged inguinal, cervical, and epitrochlear glands. There was a well-marked macular syphilide on the chest and abdomen; mucous patches were found on the tongue, lips, and tonsils; there was an otitis media on the left side. Under the use of inunctions, which were continued for several months, followed by the protoiodid of mercury, given internally, rapid improvement in all his symptoms took place, and he returned to his home in the South, where for a period of eighteen or twenty months he was under the care of another physician, who prescribed mixed treatment. During all this period he remained well and was free from noticeable manifestations of the disease. About three and a half years after the date of the original infection he again came under observation, complaining of severe occipital headache, radiating down the back, and accompanied by occasional attacks of vertigo. The pain was more severe at night, and was sometimes associated with nausea, vomiting, and extreme restlessness. Examination at this time revealed slight enlargement of the left pupil, incipient double optic neuritis, and a marked increase in all reflexes; no paralysis; no foot clonus; no changes in sensation; no loss of sphincter control, Under mercurial inunctions and increasing doses of potassium iodid, rapid improvement in all his symptoms occurred. On April 20th, after five days of freedom from headache and all abnormal head symptoms, he was suddenly seized with loss of consciousness and an epileptiform convulsion, involving all the extremities. Ten hours later another slight convulsion occurred. He became restless, excited, and mildly maniacal. The temperature, which up to the present time had been normal, now rose gradually to 104° F. The pulse remained below 100 and was firm and regular. There was no embarrassment of respiration. In spite of vigorous antisyphilitic treatment, he gradually sank into a comatose condition, and died on May 6th, 1896.

At the autopsy, made a few hours after death, the pia appeared normal over the convolutions, but at the base of the brain it was opaque and thickened. At the superior termination of the basilar artery, and enclosed by thickened meshes of the pia, was a round tumor, seventy-five milli-

meters in diameter. This tumor lay between the third nerves, slightly indenting the pons, on the under surface of which it pressed. It was formed by an aneurismal dilatation of the basilar artery, the walls of which were partially destroyed. The basilar artery was filled with a red thrombus throughout its entire extent, and the upper portion of the vertebrals and part of the posterior communicating arteries were likewise occluded. There was no softening. Microscopical examination showed an endarteritis of some of the large arteries at the base of the brain and the aneurismal dilatation of the basilar artery.

Dr. Bailey, in discussing the paper, referred to the rarity of cases of acute cerebral syphilis, which afforded an opportunity for pathological investigation. The pathology of cerebral syphilis showed that the blood-vessels were the most common seat of the lesions in fatal cases. It was not definitely known in which coat of the vessel the morbid process begins, but the intima showed the most marked changes. It was impossible to distinguish, histologically, between specific endarteritis and endarteritis due to atheroma. The prognosis of acute cerebral syphilis depends upon the predominating anatomical character of the inflammation.

REVIEWS.

Burdett's Hospitals and Charities; 1896. Being the Year-book of Philanthropy. Seventh year. London: The Scientific Press; pp. 856.

The author of this volume is well known by his famous work on the "Hospitals and Asylums of the World," the materials for which was collected during a personal visitation of the hospitals of all countries. This "Year-book" is the seventh of the series and its statistical matter is for the year 1894. The author states that this book deals each year with institutions which expend twenty to twenty-five millions. It contains, in convenient form for study or reference, the revenue, cost, and management of the charities of all English-speaking nations. An examination of its pages shows that it makes a just claim to be a reliable guide to British, American, and Colonial hospitals and asylums, medical schools and colleges, religious and benevolent institutions, dispensaries, nursing and convalescent institutions.

Nearly one-third of the volume is devoted to a discussion of the many current and vital questions connected with public charities. In as many chapters we find the subjects to be "Events and Progress in 1895:" "The Misuse of Hospitals;" "A Central Hospital Board for London;" "The Cost of Hospital Management and In-and-Out Patients' Maintenance;" "Some General Charities, including Home and Foreign Missions;" "Orphanages, Homes, and Refuges;" "Convalescent Homes and Institutions for the Blind, and the Deaf and Dumb:" "Hospital Finance;" "The Hospital Commissariat;" "The Construction of Hospital," etc.

These chapters are full of information, and suggestions which ought to have a wide diffusion among those engaged in the supervision of charities of every variety. A study of these chapters would be of special value to legislators, and to the charitable public, on whose donations institutions of this kind depend for support. The author condemns unsparingly the real vices of administration of charities, while he generously defends them from the too common charge of great recklessness of expenditure of funds contributed for their support.

Borderland Studies: Miscellaneous addresses and essays pertaining to medicine and the medical profession, and their relations to general science and thought. By George M. Gould, A.M., M.D. Philadelphia: P. Blakiston, Son & Co. Pp. 384.

The author of these essays is no stranger to these columns; indeed, not a few of the essays first saw the light in the News during his period of service as editor. Most noticeable is their deeply thoughtful and argumentative character, often their somberness, sometimes with an undertone of sadness, not infrequently an appealing quality, whether the author wills it or no. So far as we can comprehend the author's faith, it is nor to us a cheerful one. Schelling and Schopenhauer are not cheerful masters. Life, as a divinity, a basis of faith and hope, is often appealed to; but whether as supreme, in a pantheon, remains to us obscure, both as to concept and expression.

That the fact of immortality should be questioned seems to the author irrational, if not immoral; but immortality of what, and leading to what experience? Is it the immortality of mere atoms, or of something else? The author does not appear to know; and if others have clearer vision in such matters, or, at least, conceptions which are more satisfying to them and quite as logical, from their premises, wherein is the utility or the humanity in arguing them away and replacing them not at all, or with nothing which is substantial to those who are most concerned.

We have given the metaphysical elements of these essays this prominence, for they are really the most noteworthy, and the author's bias in this direction is all too evident, notwithstanding his consignment, in his first essay (p. 23) of all metaphysics, theology, and philosophy to the uttermost limbo when compared with the results and advantages of modern science.

In the essays concerning language, especially medical terminology, we can scarcely agree with him as to his orthography or his etymology. As a purist, he surely should not approve of hybrid and incorrect terms merely because usage has sanctioned them; and as a purist, again, his choice of terms (*e.g.*, baddish, bunglesome, pernicketty) is frequently quite as objectionable as those which he dislikes.

Notwithstanding the opposition which is aroused, we are willing to credit our author with much that pertains to the sincere reformer, much that implies struggle and aspiration for higher and better things, politically, morally, and socially. His love of nature, animate and inanimate, hatred of shams, desire for that which is unconventional, appreciation of that which is beautiful in nature and in art, all declare what the man is, find expression often in terms of decided beauty, and will meet with the responsive chord in many who will disagree most radically with his theological and metaphysical speculations.

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ORIGINAL ARTICLES.

FIBRINOUS BRONCHITIS, WITH REPORT OF AN ACUTE CASE.[1]

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THE subject of fibrinous bronchitis has never been discussed by this Association, though one of our members, Dr. W. C. Glasgow,[2] published an exhaustive study of the affection some fifteen years ago. The disease is extremely rare, particularly in the acute form.

The following case came under my observation in July, 1895:

Mrs. G., aged about forty-five and in excellent physical condition, had been under my care for some ten days for a Colles' fracture of the right arm. Her family record was negative, with the exception of a history of gout or rheumatism on the maternal side. She herself was of an excitable nervous temperament, and had had symptoms suggesting gouty tendencies. On the 29th of June, I changed and reapplied the splints to her arm, and left her in apparently perfect health. Two days later, on the morning of July 1st, I was sent for in haste, and found her in considerable distress. She stated that she had gone to bed the night before as usual, feeling perfectly well. During the night she was awakened by a sense of oppression in the chest and great difficulty in breathing. Toward morning she was taken with paroxysms of coughing, which finally resulted in the expectoration of clumps of a grayish-white substance, which was floating in a glass of water on my arrival. The expectorated masses, when shaken up a little in the water, proved to be a rather firm, tough membrane, resembling that found in diphtheria, but branching and twig-like in form. It had evidently come from the medium-sized bronchi of the lungs. There was no involvement of the upper respiratory passages. The dyspnea had been greatly relieved by the expulsion of the bronchial casts. There was but little fever, the temperature being about 100°, the pulse was 96, the respiration somewhat quickened by the patient's nervous apprehension.

Physical examination was almost wholly negative in its results. The percussion note was resonant throughout the chest, the breath sounds were somewhat diminished, but there were no râles or other evidences of an inflammatory process in the lungs. I prescribed a simple expectorant mixture of iodid of potassium and muriate of ammonia, with codein to quiet the mental agitation of the patient. On the next day a few scattered moist râles were heard in the lungs. Casts were expectorated at intervals for two or three days, but otherwise the case pursued the course of a mild catarrhal bronchitis, and the patient was well in a week.

On questioning the patient as to her past history, I learned that she had had one similar attack, but much more severe, some ten years before, which had lasted two weeks. At that time (the patient was then under the care of the late Dr. A. L. Loomis), as on this occasion, no exciting cause for the onset of the disease could be determined. There was one other fact of interest in the history of this patient, which may perhaps throw some light upon the etiology of fibrinous bronchitis. She said that several times in her life she had had circumscribed swellings upon different parts of the body, but especially upon the arms and hands. The swellings came on suddenly, sometimes after she had by chance plunged her hands into very cold water, but at other times without evident cause, unless perhaps indigestion or some mental disturbance. The description of the affection corresponded with that of angioneurotic edema. According to Dana,[1] there is reason to believe that neurotic edema may sometimes attack the stomach, or even the lungs, though he considers the latter unlikely, as the vasomotor innervation of the pulmonary blood-vessels is very stable. It is known, however, to attack the larynx and throat, and it is within the range of possibility that fibrinous bronchitis is an angioneurosis of the bronchi, resulting in a fibrous exudate instead of the serous transudation of neurotic edema.

Fibrinous bronchitis has been the subject of several elaborate reviews during the past thirty years, notably those by Lebert,[2] Riegel,[3] Glasgow,[4] West,[5] and more recently Beschorner.[6] I shall not, therefore, deal with the disease at length, but shall simply touch briefly upon some of the most striking features.

The etiology and pathology of fibrinous bron-

[1] Read at the annual meeting of the American Climatological Association, at Lakewood, N. J., May 13, 1896.

[2] *St. Louis Courier of Medicine*, 1880, iii, p. 109.

[1] "Text-book of Nervous Diseases," p. 488.

[2] *Deutch. Archiv f. klin. Med.*, vol. vi, p. 74.

[3] "Ziemssen's Cyclop. of Practice of Medicine," vol. iv, p. 438.

[4] Op. cit.

[5] *The Practitioner*, 1889, vol. xliii, p. 83.

[6] Samuel, *klin. Vortr. h. F.*, Leipsig, 1893, No. 73 (*Mu. Med.*, No. 25, p. 617).

chitis are most obscure. Modern investigations have added little to our knowledge of the affection, beyond establishing the nature of the exudate in the bronchi. Until the middle of the present century, the expectorated masses were variously described as pulmonary blood-vessels, fleshy polypi, coagulated blood, inspissated mucus, lymphatic concretions, or cast-off bronchial mucous membrane. Remak,[1] in 1845, was the first to insist upon the fibrinous character of the membrane, and he gave to the disease the name of "fibrinous bronchitis." Beschorner, in his recent article, states that in two cases observed by him the bronchial casts were composed of mucus. All other modern writers agree that the exudate is made up mainly of fibrin, containing in varying proportions epithelial cells, leucocytes, fatty matter, air bubbles, and granular detritus.

Some acute cases, whose clinical course resembled that of an acute infection, were thought to be diphtheria with unusual localization of the exudate. The membrane in these cases, however, failed to show the Loeffler bacillus in any instance, and inoculation of animals also gave negative results. Other microörganisms have been reported by two observers. Picchini[2] found three varieties of cocci in the expectoration of three laborers who were affected simultaneously with the disease. He apparently made no cultivation of the microörganisms, but inoculation of the trachea of animals produced an affection resembling fibrinous bronchitis in the human subject. Sokolowski,[3] in a recent paper, describes an acute case, characterized by high fever of two weeks' duration, in which the staphylococcus aureus and the staphylococcus albus were found in the expectoration. He succeeded also in reproducing these microörganisms in various culture media. Sokolowski is therefore of the opinion that acute fibrinous bronchitis conforms to the type of an infectious disease, and is possibly caused by the staphylococcus aureus and albus. He also believes that chronic fibrinous bronchitis is, etiologically, quite distinct from the acute form of the disease.

Fibrinous bronchitis is observed more frequently in males than in females. It occurs at all ages, but most often between twenty and fifty years of age. A few cases have been reported in early childhood, and one case at the age of seventy-two years. Hayn,[4] in 1842, described the *post-mortem* findings in the case of a newborn infant that seemed perfectly well at birth, but died a half hour later. On autopsy, the bronchi and bronchioles were found filled with a fibrinous exudate.

Among predisposing causes, tuberculosis has been assigned great weight by some authors. Syphilis also has been noted in a few cases. On the other hand, many of the persons attacked had previously been in good health. It is probable that neither tuberculosis nor syphilis has any direct etiological connection with the disease. A family predisposition is occasionally seen, cases having been reported in which several members of the same family have been affected by it. In many instances, fibrinous bronchitis has apparently taken its origin from a catarrh of the bronchi of greater or less duration. Sometimes it has followed exposure to atmospheric changes, as in ordinary bronchitis. In other cases, no such exciting influence could be ascertained. It would seem that some especial individual predisposition must exist in the person attacked, but the nature of this predisposition is, as yet, unknown to us.

Fibrinous bronchitis occurs in both acute and chronic forms. The acute form may begin like a simple bronchitis, or the onset may be marked at once by urgent symptoms, such as chill, high fever, paroxysms of cough, and intense dyspnea. These symptoms may continue for several days, and are not relieved until the fibrinous casts are expelled. In the case of my patient, the expectoration of the casts began within twenty-four hours after the beginning of the attack. The expulsion of the casts is sometimes attended with hemoptysis, which may be profuse. There is usually a decided fall of the temperature, which rises again if the casts reform. Immediate relief follows upon the ejection of the membrane, and in mild cases the patient convalesces rapidly. In severe cases, in which the casts are not expelled, cyanosis supervenes, and the patient dies of asphyxia or exhaustion. In one fatal case, a tracheal cast lodged in the glottis and caused death by suffocation. The duration of the acute cases varies from a few days to two weeks. About one-half of the acute cases terminate fatally, sometimes as early as the third day.

The symptoms in the chronic form of the disease resemble those just described, but are, as a rule, less urgent. The attacks usually follow upon long-continued bronchial catarrh. The disease may last for years, the paroxysms recurring at regular or irregular intervals. The interval may be as long as sixteen years. In one case, attacks occurred daily for seven years, then

[1] Cited by Beschorner, loc. cit., p. 625.
[2] Cited by Beschorner, loc. cit., p. 635.
[3] *Deutch. Archiv f. klin. Med.*, 1896, bd. 56, heft 5 and 6, p. 476.
[4] Cited by Beschorner, loc. cit., p. 624.

ceased entirely. Physical exploration of the chest during the attack often reveals little that is distinctive. Resonance on percussion is normal. The respiratory murmur is usually more or less suppressed over the region of the occluded bronchi. If one lung only is affected, inspection may show less movement of that side of the chest. Râles may be heard if there be accompanying bronchial catarrh. A flapping or fluttering sound has been described in some cases, when the casts have become loosened in the bronchi. After expulsion of the casts, respiration may be heard in the parts of the lung before impervious to air.

But little remains to be said of the pathology of fibrinous bronchitis, in addition to what has been stated above. On *post-mortem* examination, the bronchi usually present the appearances of ordinary catarrhal bronchitis, and in addition, contain membrane more or less widely distributed. In acute cases, both lungs are involved, as a rule. In chronic cases, the process is generally more circumscribed. The membrane is molded to the shape of the bronchi, and is somewhat firmly attached. The casts are insoluble in water, but are soluble in alkalies, especially in lime water, a fact of therapeutic importance. As already described, they consist of coagulated fibrin, intermingled with cells of various kinds. Two explanations are offered of the mode of origin of the coagula in the bronchi. According to Klebs,[1] the casts are formed from transuded plasma of the blood, combined with an exudate of white blood-cells, which have escaped from the vessels. E. Wagner,[2] on the other hand, believes that the casts owe their origin to a pecular metamorphosis of the epithelium of the bronchial mucous membrane, by which the epithelium forms the cellular elements by endogenous cell production and the fibrinous framework out of the remaining cellular substance. The view of Klebs has, at least, the merit of greater simplicity. He, however, in common with all other writers, fails to explain why the exudative process should be limited strictly to the bronchi, and should recur in certain individuals for years at periodic or irregular intervals.

Diagnosis.—Fibrinous bronchitis can only be diagnosticated with certainty when the characteristic arborescent casts are expectorated. A probable diagnosis may often be made if there be a history of previous expectoration of membrane, and the patient exhibit the symptoms and physical signs already described. The diagnosis is often difficult with young children, who swallow their expectoration. Beschorner suggests that probably some cases of acute, suffocative bronchitis are really fibrinous bronchitis. Six such cases are reported by Legendre[1] and Fauvel,[2] which ran the ordinary course of an acute, intense bronchitis, ending fatally. On autopsy, pseudo-membrane was found in the finer bronchi and bronchioles of both lungs. Even in adults, the real condition may not be appreciated if the case terminates without dislodgement of the casts. Cutler's[3] case is instructive in this respect. He saw his patient for the first time some three hours before her death. She was a woman sixty-five years of age, and gave the history of a slight bronchitis of a few days' duration. Cutler found her sitting up in bed, deeply cyanosed, and in a profuse perspiration. The percussion tone was normal. Fine dry râles were heard over the whole chest, and also coarse tracheal râles. Cutler made a diagnosis of diffuse capillary bronchitis. The result of the autopsy was as follows:

> Pharynx and larynx healthy. Tracheal mucous membrane injected in lower half and slightly thickened. A croupous membrane lay reflected on itself over the entrance of the two primary bronchi. When laid in place, this membrane reached less than half way up the trachea. Downward it extended into the minutest divisions of the bronchi, in many of them forming an almost solid plug. The alveoli contained no solid matter and, except in a few places where there was edema or collapse, they contained air.

The prognosis of fibrinous bronchitis is always doubtful. It should be especially guarded in the acute form, as the disease results fatally in one-half of the cases in adult life and in three-quarters of those in childhood. The prognosis of the chronic form is more favorable as regards life, but very doubtful as to complete restoration of health or freedom from future attacks.

The indications for treatment are fourfold: (1) To favor the loosening and expulsion of the casts from the bronchi; (2) to prevent or diminish their formation; (3) to cure or relieve the bronchial or other complications; (4) to improve the general condition of the patient.

The croupous exudate is soluble in lime water and other alkalies, and many observers have seen apparent benefit from the use of lime water in the form of inhalations and sprays, with the addition of caustic soda. Inhalations of steam are also advised. Breathing into rarified air, and compression of the thorax during expiration may aid the expulsive effort of the bronchi. Emetics are

[1] Cited by Beschorner, loc. cit., p. 635.
[2] *Ibid.*

[1] Cited by Beschorner, loc. cit., p. 630.
[2] *Ibid.*
[3] *Boston Med. and Surg. Journal*, 1881, civ, p. 443.

most valuable, especially apomorphia in hypodermic injection. In one severe case, the application of mustard to the entire chest resulted in prompt relief. Potassium iodid is probably the most useful remedy in all forms of the disease. It increases the bronchial secretion when given during the acute paroxysm, and thus aids in expelling the casts. It also seems to lessen the tendency to a recurrence of the attacks if it is given in full doses and for a long period of time.

The catarrhal bronchitis, which so often accompanies the chronic form of the disease, will require appropriate treatment, as will also other complications or sequelæ, such as tuberculosis, emphysema, or asthma. Stimulants may be needed during the acute attacks, and general tonics may be of service in the intervals to improve the nutrition of the patient. A change of climate is sometimes necessary in this, as in other forms of pulmonary disease.

LINEAR SUPRAMALEOLAR OSTEOTOMY FOR DEFORMITY FOLLOWING FRACTURES OF THE LOWER THIRD OF THE LEG.[1]

BY JAMES KERR, M.D.,
OF WASHINGTON, D. C.

JOINT disability following fracture is of most serious import when affecting the articulations of the lower extremities, owing to their weight-bearing function and because they are associated with pain and a physical incapacity tending to increase as age advances, and not infrequently resulting late in life in complete decrepitude. The causes of this have long been recognized, and perhaps best described in the original monograph by Percival Pott, who, in speaking of the effect of the fracture that goes by his name, says: "The due and proper use and execution of the offices of the joint depend almost entirely on the perpendicular bearing of the tibia on the astragalus."

The disability to which I wish to draw attention is perhaps more marked in the case of this joint than elsewhere, and the fractures that more frequently induce it are Pott's fracture and the oblique fracture of the lower end of the tibia. These effects seem to depend on the alterations of the normal articular relations by which the weight-pressure is thrown off the normal axis and bears unduly on one side of the joint, producing at first a feeling of insecurity, and later, pain and lameness. The extra-articular structures, capsule, ligaments, and tendons are subjected to strain corresponding to the amount of axial deviation. Arbuthenot Lane, in a very important contribution to our knowledge of fractures of the leg, says that physical incapacity (the case of laborers) follows in a proportion of seventy per cent. to eighty per cent. in oblique fractures of the bones of the leg, and cites forty cases collected among hospital patients in support of this statement; and most of us have met with such cases among those who lead laborious lives.

He believed[1] that the average financial depreciation of the laborer, as a machine, after such injury, amounted to nearly seventy per cent. of his original value. This he thought due to alteration in the lines of pressure through the several joints of the lower extremity, resulting from deflection of the lower fragments from their original relationship to the upper. In consequence of this alteration, insecurity and pain were experienced in the joints, especially the ankle and foot, and increased with the age of the individual. Pathologically there was a progressive mechanical arthritis in the joints. Mr. Lane consequently advocated operative measures entailing a minimum of risk to the life or limb of the patient, by which the fragments could be brought into apposition and so retained with perfect accuracy that the skeletal mechanics of the individual remained as perfect after the injury as they were before. He cut down on the fracture of the tibia and exposed the broken ends freely, removing any tissues intervening between the sectional surfaces, bringing these surfaces into accurate apposition, partly by traction on the foot, partly by means of elevators, and partly by means of lion forceps, by which last instrument apposition was continued till holes had been drilled and the bony surfaces brought together immovably and forcibly by the introduction of steel screws. He read notes of three cases which he had operated on in the same week. The results were extremely satisfactory, since the fragments had united perfectly. The paper was supplemented by a brief account of forty cases collected by Mr. F. J. Steward, which fully bore out the truth of Mr. Lane's statements.

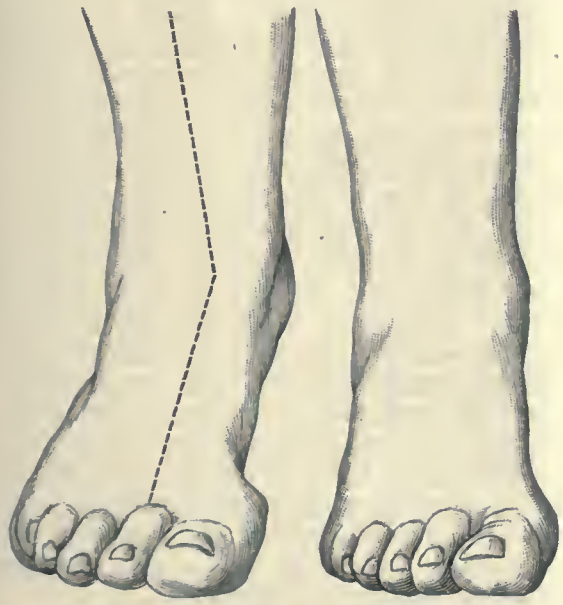
If these statements are in accord with the facts, the routine methods of treatment in fractures of the leg call for revision. The mistake arises mostly from treating all fractures of the leg in the same way, without regard to the special pathology of each. The two classes of fractures that I am now dealing with cannot be managed without serious ultimate results to the usefulness of the limb by the methods most generally advised, namely in box splints, plaster-of-Paris, or

[1] Read before the Am. Orthopedic Assoc. at Chicago.

[1] Paper read before the Clinical Society of London, April, 1894.

any method by which the limb is kept in the straight position and foot not adjusted and maintained so as to meet the special indications of either fracture. Fracture of the fibula, with fracture of the internal maleolus or rupture of the internal lateral ligament, require muscular relaxation and inversion of the foot. The oblique fracture of the tibia requires the same regard to muscular tension and eversion of the foot. Special indications to meet such displacements, as backward position of the foot in the former, and forward riding of the upper fragment in the latter, are required, but it will be readily seen how frequently any general routine method must result disastrously.

Fig. 1.



Front View.

BEFORE. AFTER.

Fig. 2.

Rear View.

BEFORE. AFTER.

These evil consequences of maltreatment are most often found following Pott's fracture, and are common at any age and to all classes. The characteristic deformity, (the axis of the leg making an angle with the foot, best observed from behind, as Langenbeck has pointed out), the lameness and tarsalgia make a striking clinical picture too frequently met with.

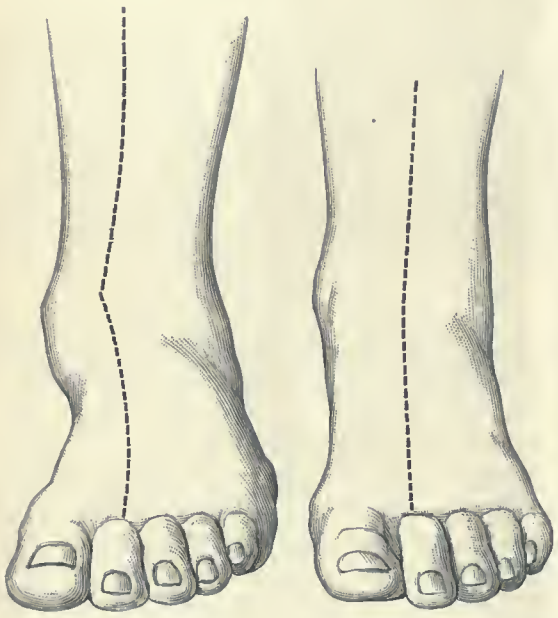
The oblique fracture of the lower third of the tibia is not of so common occurrence, and the deformity and incapacity not so marked. A consideration of its pathology, however, shows that this is due not to correct methods of treatment, so much as to the fact that the axis of the ankle can only be displaced to the limited extent that the upper end of lower fragments can encroach on the interosseous space.

The variety of fracture to which I allude occurs usually at the junction of the lower with the upper two-thirds of the tibia, and is produced by falls on the feet; in fact, it is a fracture by "contre coup," commonly jumping from a moving vehicle, and not infrequently a result of runaway accidents. The line of fracture is from without inward, and from above downward; the lower end of the upper fragment is displaced inward and forward, the upper and lower fragment outward into interosseous space. As a result, the inner maleolus is raised, the articulating surface of the tibia that was at right angles to the axis of the limb is inclined obliquely upward and presents a modified converse to all the conditions that exist in Pott's fracture, the articular relations being altered as to throw the axial weight-line outward, instead of inward, as in Pott's. This fracture of the tibia is usually associated with fracture of fibula high up. Here, as in Pott's, much can be done by proper conception of the pathology and carrying out correct principles of treatment; but where these have not been adopted, the same expedient will apply for correcting its resulting deformity, which I have to suggest for the other, but it must be comparatively rarer that an osteotomy will be demanded for the latter injury. To this particular fracture, Lane's suggestion would apply with peculiar force. There is, perhaps, no other where incapacity is more likely to ensue. It is beyond question that the routine methods of treating all fractures of the leg alike, more especially trusting them to plaster-

of-Paris dressing for long periods, without opportunities for inspection, is responsible for these results. It is also a fact that the ultimate result of a fractured limb is often in strong contrast with the immediate result. Certain changes ensue within the joint—"progressive mechanical arthritis"—as age advances, and which are usually attributed to rheumatism.

The operations hitherto devised for the correction of Pott's deformity include: Refracture by subcutaneous drilling of the fibula and internal maleolus at the site of fracture, subcutaneous osteotomy and open osteotomy at the same locality, and Fenger's supramaleolar osteotomy, by removal of a wedge of the tibia and wiring.

FIG. 3.



FRONT VIEW.

BEFORE. AFTER.

FIG. 4.

REAR VIEW.

BEFORE. AFTER.

The accompanying copies of casts, taken from cases operated on by me, will demonstrate the result of a still simpler, and I submit, equally effective procedure for the correction of this condition. It consists of a simple supramaleolar osteotomy of the tibia alone, similar to, in fact identical with, the Hahn-Langerbach procedure for the correction of valgus. The fibula was not touched, relying on its flexibility, after the tibia was divided, to restore it to its proper relation toward the interosseous space. Examination of the casts also will demonstrate the complete restoration of the normal axial relations between the leg and the foot, which is the sole object of treatment. The broadening of the articulation, which is one of the causes assigned for this disability, is corrected by the bringing inward of the external maleolus as the upper end of the lower fragment is drawn out when the foot is inverted after the tibia has been divided, and I can see a positive objection to the refracture of the internal maleolus, as its abnormal and uncorrected displacement will prevent this broadening of the intermaleolar space. The backward displacement of the foot, which is a common result of Pott's fracture, can be partially restored, as well as the rotary displacement described by Hamilton.

We have, therefore, a simple, safe expedient, within the capacity of anyone capable of accomplishing any ordinary surgical operation according to modern standards, that will only confine the patients a few days to bed, and, with the aid of massage, will give them the use of their corrected limb in from four to eight weeks, according to their age and the degree and length of time of pre-existing disability.

A NOTE ON THE INHIBITORY ACTION OF ACETANILID ON BACTERIAL GROWTH.

BY JAS. J. WALSH, A.M., M.D.,
OF PHILADELPHIA.

ACETANILID has, within these last two or three years, come to be widely used as a dusting powder in surgical practice. The unpleasant clinging odor of iodoform led surgeons to welcome anything that promised to replace it successfully. A number of powders, including various combinations of boric acid, had been used for some time but without much satisfaction, when on purely empirical grounds, acetanilid began to be em-

ployed. It has a number of advantages besides its freedom from odor. It is absolutely cleanly, disappearing completely in the secretions of the wound under ordinary circumstances; it is distinctly analgesic locally, and while it has, like iodoform, the power when used in large quantities, on an absorbing surface, of producing constitutional symptoms, these are not so severe or so dangerous, and more warning is given before the patient is seriously attacked.

Very little laboratory work has been done on acetanilid, and not much of this has been reported, but its use in dispensary practice has constantly increased, until now it has too firm a hold clinically to be displaced by any unfavorable dicta of the bacteriologists.

As a germicide in ordinary cultures of pathogenic or non-pathogenic microörganisms, it seems to be absolutely without effect. It is, of course, only very slightly soluble (1 part in 194 parts of water), so that it would indeed be a powerful germicide if solutions of it in various media prevented microörganisms from growing. Even where considerable quantities of it are present, however, as for instance, where bouillon is thickened by the amount of it present, living organisms may be found in it by culture-methods, even after it has been allowed to stand for weeks.

A series of such observations leads one almost inevitably to the conclusion, that acetanilid is absolutely inefficacious for the ordinary purposes of a dusting powder, and that it owes its vogue to the fad of an hour, initiated by the desire to get rid of the objectionable iodoform. This is the position that a number of practical bacteriologists have taken with regard to it.

There is, however, a series of observations that may be easily made, and that show that in some way, where it is present, it has a very valuable *inhibitory* action on the *growth* of all ordinary microörganisms.

If one half of a gelatin petri-plate, that has been exposed to the air for some time, be covered with a layer of acetanilid (in powder), while the uncovered half will show the development of colonies, some of which will usually cause liquefaction, none will appear on the half beneath the acetanilid. The powder need not be strewn on thickly, a slight uniform layer is enough, and should, of course, be put on *after* the exposure to give the experiment its value.

With water bacteria, the effect is more striking. If from ten to twenty drops of ordinary tap water (especially here in Philadelphia) be added to gelatin within twenty-four hours, from three hundred to three thousand colonies will make their appearance on the surface of a petri-plate poured from it. Many of these will be liquefying varieties. Here again, if one-half of the plate be covered by acetanilid as before, no colonies will develop, and no liquefaction will take place beneath it, while the other half of the plate will show large numbers, and soon be completely liquefied.

The pus microörganisms are inhibited in the same way. The effect of the acetanilid is very clear on the chromogenics. Colonies of *staphylococcus pyogenes aureus* or *citreus* would be so readily visible, if present, even beneath the white powder. Besides, the liquefying effect of these organisms fails, except on the part of the plate uncovered by acetanilid.

Needle cultures made into fresh media from beneath the acetanilid in all these cases, nearly always give positive results in the shape of normal colonies of the various microörganisms present, so that it is only inhibitory, not germicidal properties that are at work.

It is this inhibitory action of acetanilid evidently that has made it popular as a dusting powder, and its clinical value is due to something more than a mere fad. Just why its presence should have this effect seems not easy to tell. Boric acid, which is considered of little value clinically, has the same effect when used in the way described. Here, however, the reaction of the media, which becomes acid beneath the boric-acid powder, has a good deal to do with inhibition, bacteria failing to grow on acid media. Acetanilid, however, affects the reaction of the media slightly, if at all.

It is not that the powder keeps out the air and so prevents all aerobic bacteria from growing, for it was not spread thick enough for that, and inert powders, such as flour, starch, and marble dust, used in the same way, failed to have any effect on the growth, development, and liquefaction of colonies.

As it is only immediately beneath the acetanilid that no growth is seen, the line of demarcation in the media being a sharp one, the necessity for the constant presence of the powder in the wound is clear. Microörganisms are not destroyed and may begin to multiply as soon as the acetanilid disappears. Owing to its limited solubility, the tissue juices remove it very slowly, but the cleanness of wounds dressed with it, shows that it is completely removed after a time, and emphasizes the necessity for comparatively frequent renewal of it, as well as the plentiful use of it, originally.

Very probable its inhibitory action on ordinary air and water organisms, has a good deal to do with its success as an antiseptic powder. For the growth of these in the wound, doubtless, so changes the character of the tissue juices and exudates as to render them less resistant to the invasion of pyogenic germs. And this may be true, even of the most harmless varieties of non-pathogenic organisms. Some recent work in the Royal Laboratory at St. Petersburg (December, 1895), seems to show that it is absolutely true that the pathogeneity of intestinal microörganisms, notably the cholera bacillus, is dependent, to a great extent, on their association in the intestinal tract with such absolutely harmless varieties as the potato bacillus, or the *bacillus cucurbita* (cucumber), or even the ordinary molds, especially *penicillium glaucum*.

CLINICAL MEMORANDUM.

OROLINGUAL PARALYSIS AND SLIGHT MOTOR DISTURBANCE IN WRITING, OF THROMBOTIC ORIGIN; OPERATION; RECOVERY.

BY J. T. ESKRIDGE, M.D.,
AND
EDMUND J. A. ROGERS, M.D.,
OF DENVER, COL.

HISTORY AND EXAMINATION OF THE CASE.

BY DR. ESKRIDGE.

CASES of orolingual paresis, or paralysis in which disturbance of speech-utterance or articulation is the chief symptom, are so rare as to be worthy of careful study. The following is of special interest, both on account of the limited lesion and the marked improvement following excision of the left degenerated cortical area for the lips and tongue.

M. D. E., male, aged fifty, white, single, born in West Virginia, laborer by occupation, living in Colorado eleven years, was admitted into the nervous wards of the Arapahoe County Hospital, December 12, 1895. Mother and one brother died of stomach trouble, father of diarrhea. No nervous or mental diseases in the family, so far as he knows. The patient had most of the diseases incident to childhood. He always indulged in alcohol, but rarely to excess. He enjoyed good health up to his thirty-fifth year, when he suffered from some kidney trouble. He seemed to recover perfectly from this, and was well until 1890, when he contracted a hard chancre. He had a few secondary symptoms, but none of these were well-marked. He considered himself in good health, although he occasionally suffered from headache, until the first of October, 1895. At that time he began to experience severe frontal and occipital headache. The pain was nearly constant, but exacerbations of pain were common during the latter part of the day and early evening. This continued, and about the middle of the month his eyesight began to fail, and by the 28th of October he was compelled to quit work, on account of poor vision. He remained in this condition until November 26th, when, while walking on a street in Denver, he began to feel very dizzy, and staggered against a wall to steady himself and prevent his falling. He was in this position for about an hour, and during this time he began to feel pain in his right hand. A few minutes after he felt the pain in the hand, the hand began to open and shut spasmodically, and about the same time he first experienced difficulty in speaking distinctly. He could think what he wanted to say, but could not articulate, except for a few words, so as to be understood. On trying to use the right hand after the spasmodic action ceased, he found it was nearly paralyzed. The right leg also was weak, and he walked awkwardly. After a few hours he improved somewhat, especially in the use of his leg and arm, but his articulation was very defective. About a week later he noticed that his limbs were getting weaker and his speech, which had improved, was again becoming very indistinct. His headache continued, but it was less severe than before the attack. Just what his condition was between this time and the day of admission to the hospital, I was unable to learn. The first four days of his stay in the hospital he was so stupid and talked so poorly that it was impossible to make a satisfactory examination, and much of the history of his case was gotten little by little, and more by gesture than by speech.

Examination, December 16, 1895: No ataxia in standing with eyes closed. His gait is halting; he walks forward fairly well, even with eyes closed, but in walking backward the right foot is not carried beyond the left. Slight ataxic movements in the right arm, none in the left. All the muscles of the legs fairly strong and about equal in strength in each leg, but those of the right are used awkwardly. Dyn.: R., 22; L., 102. All the movements can be made with the fingers of the right hand, but they are performed slowly and awkwardly. Lower right side of the face is nearly immobile, but the right corner of the mouth is a little more retracted than the left, and the lower right side of the face presents a wasted apperance when compared with the left side. He is unable voluntarily to retract or move the right corner of the mouth. He cannot whistle, as the lips on the right side fail to move at will. He can shut both eyes, but he cannot wink with the right eye. He says that he was formerly able to wink with either eye. The tongue is protruded in the median line, but it deviates to the right after being protruded a short time. Knee-jerks are about normal and not much increased by reinforcing. Plantar reflexes are absent. Tendo-Achillis increased. Cremaster reflexes: R.. absent; L., present. Abdominal reflexes absent. All the deep reflexes of the arms are increased, and nearly the same on each side. Masseters absent. Tactile sense is everywhere present, but it seems a little more acute over the left hand than over the right. Localization and muscular sensations lessened in right hand. Other general sensory phenomena apparently nearly normal, but it is impossible to make a satisfactory examination, on account of his difficulty in speech-utterance and his apparent inability to comprehend just what is wanted. Hearing: Watch, R., ⅙; L., ⅓. The tuning-fork is heard better

in the left ear. Smell and taste present no points of interest. Eyes, R. V. equals $\frac{20}{50}$; fields narrowed; pupil normal in size and responds to light and accommodation; disk a little pale, but presents no marked changes. Central vision is the same in the left eye as it is in the right, but the fields seem normal. Other points about the same as noted in the right eye. All the external ocular muscles of both eyes act well.

Mental Condition: He seems stupid, and says that he cannot think, as his mind becomes blank as soon as he tries to think on any subject.

Speech defect: On thoroughly and sytematically testing his power of speech, no form of sensory aphasia is detected. He understands printed and written words. He reads inaudibly and comprehends what he reads. On his reading aloud, his articulation is so imperfect that it is impossible to understand what he reads, except a simple word occasionally, which by an explosive effort of the lips, he pronounces distinctly enough to be understood, if one is paying close attention. He can write voluntarily, at dictation, and copy, but he had never learned to write well, and he forms the letters very imperfectly with the left hand. He can write a little with the right hand. He copies printing and writing into script. When asked if he understands what he reads, he nods his head, and with an explosive movement of the lips says "Yes." He repeats simple words after another. It is observed that the greater the effort that he makes to pronounce a word, the more nearly he succeeds in pronouncing it distinctly, thus differing from the defect in speech due to a lesion in Broca's convolution. As well as can be determined, he has no difficulty in thinking in speech. He complains of constant headache.

He was placed upon increasing doses of potassium iodid, and a dram of blue ointment by inunction was ordered night and morning. A careful record of the temperature in each axilla was kept, but little deviation from the normal was observed, and the temperature was usually about the same in each axilla. The pulse and respiration showed nothing abnormal. He was examined two or three times each week, and the record shows that he improved, except in his ability to pronounce words. The headache became less, but did not disappear. He looked less haggard and depressed. The right hand and arm gained in strength, and the right leg was used much better.

On January 2, 1896, the following notes were made: "The right arm and leg are much stronger and preserve greater freedom of motion than on December 16, 1895. The reflexes remain about the same. Tactile sense slightly lessened in the right hand, especially on the distal portions of the fingers and on lower right side of the face. Localization and muscular sensations decidedly lessened in right hand. He usually fails to locate the contact of a camel-hair pencil on the right side of the lips and tongue. He still complains of headache and a sensation of exhaustion. His appetite is poor. Mentally he is a little brighter. His power of articulation has improved only very slightly. There is some atrophy of the lower right side of the face. The tongue deviates slightly to the right in protrusion. Vertical and transverse corrugation of the forehead seems about equal on each side. He opens and shuts both eyes at the same time well. He can wink only with the left eye. He is unable to whistle or move the right corner of the mouth. In trying to utter words he makes explosive efforts with his lips, and in pronouncing long words he unduly separates the syllables. In uttering the word 'Columbus' he makes three distinct efforts, so the word sounds thus: 'Cul-um-bus.' 'Truly rural': 'too-lil-loo;' second effort, 'too-e-roo-le.' 'Hurry:' 'urry,' 'flurry,' 'furry.' 'W:' 'dub-you;' second effort, 'dub-ble.' In his letter to-day all the words are spelled and arranged correctly, but the letters are so poorly formed that it is almost impossible to read what he has written, unless one knows what he is trying to write."

The first fifteen days that the patient was in the hospital he steadily, but rather slowly, improved under antisyphilitic treatment. About the first of January he ceased to improve and began to retrograde. His stomach was disordered, he looked pale and haggard, ate little, and was nervous and depressed. His speech-utterance was about as bad as it was on the 12th of December, the day of his admission into the hospital. He was placed on quinin, strychnin, and arsenic, and urged to take nourishing food. Finally his headache became so troublesome that I decided to recommend a surgical operation for its relief.

Diagnosis: The symptoms pointed to a growth or a vascular lesion. There were many points in favor of the presence of a tumor. The headache, impaired vision, and distinct localizing symptoms were certainly in favor of a tumor. The absence of choked disks in a small growth in the anterior portion of the cortical surface of the brain is not uncommon. But the rapid onset of distinct symptoms of a localized brain lesion, while it may occur from a tumor, is much more often due to vascular trouble. The wasting of the muscles of the right lower side of the face indicated an irritative lesion in the cortical face center, but a growth rarely occurs in the motor cortical area of the brain without repeated convulsions. The patient's age and his anemic and depressed condition made me suspicious of a malignant growth. It seemed very probable that a growth might have existed for some time, subcortically to the orolingual area, in an ignorant laboring man, without having attracted special attention, and that sudden closing of one of the branches of the left middle cerebral artery might account for the sudden appearance of the paralysis and the disturbance in speech. After carefully studying the case for a number of weeks, I was unable to come to any positive conclusion in regard to the nature of the lesion. The man's condition was becoming worse and his headache was very troublesome, so that surgical aid seemed to offer the only hope of relief. I explained to the patient that he might not gain much from an operation beyond relief from pain, and that his paralysis and speech-defect might still persist. He left the matter entirely with me. I asked Dr. Rogers, the surgeon on duty at the hospital at the time, to see the case with me. We decided that an operation could do no harm, as all other means had failed to relieve the symptoms, especially the pain. January 17th was set for the operation. He was

reëxamined on the 16th. Dyn.: R., 52; L., 94. All other conditions were about the same as on the 2d inst., except that the patient was weaker than on that day.

OPERATION AND SURGICAL ASPECT OF THE CASE.

By Dr. Rogers.

January 17th, 12.30 P.M.: On removing a three-quarter inch button of bone from over the lower ends of the central convolutions, and enlarging the trephine opening to about one and a half inches in diameter, the dura seemed lax, and did not bulge. No pulsation of the brain was felt or seen. Dr. Eskridge applied the Keen double electrode, attached to a large Flemming faradic battery, to the lower portion of the exposed surface of the dura, but elicited no response from any muscles. On his carrying the electrodes a little higher, the thumb and fingers of the right hand flexed. After holding the electrodes in the same position a few seconds, the muscles of the right side of the neck contracted, the head turned to the right, and a slight convulsive movement occurred on the entire right side of the body, except in the muscles of the leg. On incising the dura over the supposed face center, the latter, over an area about three-fourths of an inch in diameter, seemed soft and degenerated. The broken-down area of the cortex, which looked cystic, was excised, without apparently cutting into the white substance of the brain, below. The brain was seen to pulsate as soon as the dura was incised. Gold foil, the size of the opening in the skull, was placed between the scalp and the dura and the wound completely closed. He made a rapid and uneventful recovery from the surgical operation.

MICROSCOPICAL EXAMINATION OF THE EXCISED PORTION OF THE CORTEX.

By Dr. Axtell.

The brain-cells are apparently lessened in number. They seem to be smaller than normal and to present open spaces about them, which are filled with fluid and granular material. The blood-vessels show slight thickening of intima and adventitia. The neuroglia is somewhat increased in amount, and shows an increase in its cellular elements. The pathologic diagnosis is local cerebritis.

CONTINUATION OF THE RECORD, WITH REMARKS

By Dr. Eskridge.

The degenerated portion of the cortex was circumscribed, about half an inch in diameter, and apparently limited to the left face area. The affected portion was much softer than the surrounding cortex, and, on cutting into it, it had a cystic appearance and contained a few drops of straw-colored watery fluid. The pia was firmly adherent to the cortex over the degenerated area. No muscular contraction occurred when the electrodes were applied to the dura over the affected portion of the cortex, nor when the electrodes were brought into direct contact with this portion of the brain after the dura had been incised, but that the face area was involved by the lesion seemed to be proved by the thumb and fingers of the right hand contracting on the electrodes being carried just above the area invaded by the pathologic process.

After the operation the lower right side of the face was almost completely paralyzed, but the tongue did not deviate much to the right on protrusion. The right hand was almost completely paralyzed for a few days. His power of speech-utterance was worse than before the operation, so that scarcely a word that he attempted to speak could be understood. Deglutition did not seem to be much affected. Tactile and localization sensations were lessened on the skin covering the affected muscles, but pain and temperature sensations remained nearly normal. He experienced no difficulty in understanding or thinking in speech. The clinical record after the operation shows nothing of any special importance. The temperature remained about the same in each axilla, and was practically normal after the first few days.

January 20th, the following notes were made: "Dyn.: R., 32; L. 86. Lower right side of the face, including nose, is completely paralyzed. The right eye can be opened and shut with the left, but the upper lid of this eye cannot be moved without moving the corresponding lid of the left eye. The tongue is protruded nearly in the median line. Pronunciation worse than before the operation. Localization is perverted in right hand, but normal over the face, except on right side of upper and lower lips. Temperature and pain sensations apparently normal everywhere. Tactile sensation seems very good, except in right hand and over right side of lips, where it is slightly lessened in acuteness." It will be observed that the right hand, three days after the operation, was about two-thirds as strong as it was immediately before, thus showing the hand-center had not been excised. From the 20th of January until about the 1st of March he scarcely showed any improvement. He did not seem to suffer much from the immediate effects of the operation, but he was so anemic and weak that he did not rally, gain strength, or put on flesh. He suffered a great deal from headache, was despondent and nervous, ate but little, had great difficulty in digesting his food. He continued weak and anemic for five or six weeks after the operation.

Early in March improvement became manifest. He began to utter his words more distinctly, his headache lessened and finally disappeared, he put on flesh, and soon looked much better in every way. He was now required to write a letter daily and to read aloud for an hour or so each day. He has made slight improvement in writing, but it is yet almost impossible to read what he has written. He, himself, has great difficulty in reading his own writing, except immediately after he has written. As he began to form many letters so that they could be made out, it was found that he misspelled and occasionally transposed phrases. It must be remembered, however, that he never learned to write well, and probably always spelled poorly.

Examination, May 15, 1896: The patient looks the picture of health, and seems bright and cheerful. His gait is good and he can walk briskly without scarcely showing any limp in the right leg. With eyes closed he walks backward and uses the right leg as well as the left. There is no ataxia, except in the right arm and hand. He uses the right hand and arm slowly and awkwardly. All the leg muscles are strong. Dyn.: R., 100; L., 115.

Knee-jerks both increased, right a little more than the left; ankle clonus and plantar reflexes absent; tendo-Achillis and cremaster reflexes present; abdominal reflexes absent; all the reflexes of the arms increased, the right more than the left; masseters absent; all general sensory phenomena normal. Hearing, taste, and smell present no points of especial interest.

Eyes: R. vision, $\frac{4}{6}$; L., $\frac{4}{6}$. Fields are normal. The pupils are normal, equal in size, and react readily to light and accommodation. All the external ocular muscles act normally. The fundi and disks present no pathologic changes, except that the disks look a little pale.

The right lower side of the face is wasted in comparison with the left. He says that his face was symmetrical before the beginning of his present trouble. The parts around the mouth, on casual inspection, seem drawn to the right, but this appearance is due to the wasting, as the center of the lips still remains in the median line. He is able to move the right corner of the mouth much more freely than he could before the operation. Both eyes close well at the same time, but he cannot close the right eye without closing the left. The tongue deviates slightly to the right in extreme protrusion. He is unable to whistle; formerly he could whistle quite well.

Speech: The speech-defect is of the same character in every particular as was noted at the former examination, but he articulates much better. With a decided effort he can slowly and deliberately pronounce most words. Sometimes it requires two or three attempts to pronounce a long word, but in the end he usually succeeds. The lips and tongue are not paralyzed, but ataxic. They present very much the same condition that is found in the muscles of the right hand and arm. He has no difficulty in thinking in speech. He still writes much worse than he did before the paralysis of the right hand occurred. The writing with the left hand is fairly good for one who never wrote even an ordinary hand. He does not transpose any letters. Simple words he spells and writes correctly. If a word is spelled for him, he does not write it any more rapidly or correctly than when he is allowed to spell it himself. The defect in writing seems almost entirely due to the ataxic condition of the muscles of the right hand and arm. His headache has entirely disappeared, and his mind is clearer, although specific medication was never resumed after the operation.

The results of the operation in this case fully justify its repetition in similar cases. There is no doubt that localized cerebritis acts as an irritant, giving rise to headache and interfering with cerebral function. Kussmaul and others give muscular wasting of the face, in connection with defect in speech, as one of the diagnostic symptoms of bulbar lesion, in contradistinction to one occurring above the nuclei of origin of the cranial nerves concerned in articulation and phonation. But few writers, so far, have laid much stress upon the fact that an irritative cortical lesion may cause rapid and pronounced wasting in the group of muscles involved. The second case reported in this series is a striking example of this. One of the chief symptoms between atrophy of the muscles from a nuclear lesion and from one in the cortex is that in the latter the affected muscles respond normally to electricity, while in the former they do not. The wasting from irritative cortical lesions is probably due to an inhibitory influence on the trophic centers, while that which occurs from a nuclear lesion is due to the direct effect on the trophic centers of the muscles themselves.

The defect of speech from orolingual paralysis will be considered more fully in a paper devoted to aphasia.

July 3, 1896, William E. was so well that he decided to leave the hospital and earn his own living. At this time, he talked so as to be readily understood, could communicate his thoughts in writing, walked with only a slight limp in the right leg, and used his right hand fairly well.

Nothing further was heard of him until the morning of July 8th, when he was found in his room in an unconscious condition and was supposed to be suffering from a poisonous dose of morphin, as his pupils were pinhole in size and the respiration was slow and irregular.

He was immediately taken to the county hospital, and I saw him shortly after his admission; 11.30 A.M., he was completely comatose; the pupils very small, equal in size, and did not respond to a strong light; the left eye diverged and turned slightly upward. Corneal reflex; R., absent; L., present. Knee-jerks, both enormously increased and attended with slight clonus. Ankle-clonus present, but slight, and a little more pronounced on the left side than on the right. The resident physician stated that when the patient was first brought into the hospital, the ankle clonus and the other deep reflexes were more marked than when I examined him. Plantar reflexes absent. Tendo-Achilles: R., slightly increased; L., decided and attended by slight clonus; cremaster and abdominal reflexes absent. All the deep reflexes of the arms, including the deltoid and pectoralis major, were greatly exaggerated, but more marked on the left than on the right side. The masseter reflexes were not tested. Pulse was 108, small and very compressible; respiration 14 per minute, intermittent, short, and spasmodic, or jerky, in character. One hour and a half before I saw him, his axillary temperature had been: R., 100.8°; L., 99.8°. At the time of my first visit, it was R., 102.2°; L., 102.2°. Unconsciousness was so profound as to make it impossible to test any form of sensation. The bladder was emptied by means of the catheter, and the urine found to be free from albumin or sugar. The lungs and heart presented no evidence of disease.

From the loss of the right corneal reflex, on account of the enormous increase of the deep reflexes, greater on one side (the left), the jerky character of the respiration, and the elevated temperature, without any renal or intrathoracic complications to account for it, especially as the temperature had increased about two degrees in 90 minutes, opium poisoning was excluded. Instead, a diagnosis of thrombotic occlusion of a vessel affecting the arterial blood supply to the right side of the pons was made.

At 6 P.M. the axillary temperature was: R., 104.2°; L., 104.2°. He gradually sank and died the next day about noon. The temperature did not go above 104.2°. It fell one degree in each axilla from 6 P.M. of the 8th to 6 A.M.

of the 9th, but rose to 104.2° just before his death, a few hours later.

Autopsy four hours after death.

On reflecting the scalp, the gold foil was found *in situ*, but it was perforated in several places, and adhesions between the dura and scalp had formed through the openings in the gold foil. There were no abnormal adhesions found between the dura and bone. At the seat of the operation, the membranes were found firmly adherent to each other and to the brain substance. No other adhesions, except the one just noted, were found between the dura and soft membranes. In the left middle cerebral artery, just peripheral to the point at which the anterior cerebral is given off, there was a patch of arteritis on its under and posterior surface about one-quarter of an inch in length and extending about half-way around the vessel. The coats of the vessel were thickened and roughened, but the lumen of the artery was not occluded. The anterior cerebral and right middle cerebral arteries appeared normal. The right posterior cerebral artery presented several patches of arteritis that completely encircled it. The right posterior choroid artery, which is a branch from the posterior cerebral, was completely occluded. The left posterior cerebral, the basilar, and vertebral arteries, presented no further evidence of disease beyond little whitish spots that were evidently the seat of beginning arteritis. The pia was readily stripped from the brain, except at the point of the operation, where it could not be detached without taking a portion of the cortex with it.

It was found that the dura had been incised, and the cortex scraped at a point situated at the lower end of the fissure of Roland, and that the adjacent portions of the cortex of the ascending frontal and ascending parietal convolutions had been invaded by the surgeon's spoon. The cortical substance immediately around the site of the operation of the convolutions was slightly softened and a little yellowish in appearance. On the under surface of the posterior portion of the operculum there was an area of yellowish softening about one-quarter of an inch in diameter and not more than one line in depth. The insula and the third frontal convolution were normal in appearance. In the left lenticular nucleus, at a point corresponding to the angle of the internal capsule, there was found an old cyst about one-quarter of an inch in diameter, and just behind this, with an intervening bridge of white, fibrous-looking tissue, another cyst of about the same size was discovered. The cysts contained a yellowish, flocculent, watery liquid, evidently the result of softening from arterial occlusion. The remainder of the left side of the cerebrum, the entire right cerebrum, and the whole of the cerebellum, presented no abnormal appearance. The crura seemed normal. On sectioning the pons and medulla, the entire right side of the pons and the upper portion of the medulla of the same side, showed evidence of marked vascular change. The tissue was less firm than on the opposite side, appeared edematous, with spots of hemorrhagic extravasation, which was in marked contrast to the corresponding structures on the left side.

MEDICAL PROGRESS.

The Effects of High Altitudes on the Blood.—SCHAUMAN and ROSENQUIST in the *Centralblatt f. Innere Medicin*, May 30, 1896, contribute a valuable paper to the better understanding of the effects of high altitudes on the human body. Up to the present time, most of the experimental work on this subject has been done by the French and Swiss, Viault, Regnard, Egger, Miescher, Mercier, and others. These investigators have definitely proved that by a relatively short residence in a high altitude, the number of red blood-cells per cubic millimeter is increased, the maximum being reached in from two to three weeks, and that a low region, this increase is soon lost.

Grawitz and Sahli have tried to explain this increase by saying that the blood in the dry high atmosphere became more concentrated through loss of some of its serum; but experiments with rabbits have failed to make good this claim, and Zuntz has pointed out that on account of the osmosis in the body, in order to increase the blood-cells 20 per cent., it would be necessary for a person to lose from twelve to fifteen pounds in weight, which does not take place. The explanation is, therefore, still to seek.

Schauman and Rosenquist experimented in the laboratory. A dog was enclosed in a glass chamber at a considerably diminished pressure of the atmosphere (450 to 480 mm. of mercury). The other characteristics of high altitudes were wanting, as the air in the chamber was moist and warm, and not very pure. Still in three weeks the blood count had increased from 5,000,000 to 7,200,000, and the hemoglobin from 68 to 80 per cent. Two months after the animal was again at liberty, these figures were still above normal; viz., 6,490,000 and 81 per cent.

The authors conclude that the effects of high altitude on the blood, is not due to dryness, but to rarefaction of the air; and that the increase in red blood-cells is an actual one, and not an increase relative to the serum. This is still further supported by the fact that the blood from the dog, after his removal from the rarefied chamber, and while the blood count was diminishing, often contained many "shadows" of blood-corpuscles—a condition which has been noticed after the injection of substances which disintegrate the blood.

An Extraordinary Retention in Utero of the Fetal Head.—In the *Centralblatt f. Gynäkologie*, 1896, No. 24, is mention of a case reported by TOTH of Budapest, in which the attending physician pulled so vigorously upon the breech of an eight month fetus that its neck parted, and the head remained in utero, despite all his exertions to remove it. The mother, a young III-para, recovered with some fever, and enjoyed good health for a year. During this time, irregular hemorrhages and foul-smelling discharge continued, followed by the occasional discharge of bones. At the end of sixteen months, the cervix was dilated, and the large bones of the skull, which remained, were removed. They were extensively adherent to the uterus, and the free hemorrhage which followed their removal was controlled by tamponade. The patient made a quick recovery. Such tolerance on the part of the uterus must be very unusual.

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SATURDAY, AUGUST 15, 1896.

THE CHARITIES COMMISSIONERS.

The recommendation which has been made by the framers of the Greater New York Constitution, that the most important Commissions be comprised in one individual, is to be heartily commended. The unity of the Charities Commissioners, instead of a trinity, as exists to-day, would, in all probability, have obviated the farce now being enacted in Bellevue Hospital under the present Board.

A single-headed commission would undoubtedly bring to the position an incumbent of sufficient intelligence to appreciate the fact that the duties of the office do not involve the exploiting of secret cures for drunkenness. Swelled though his head might be by the importance of his official functions, it would hardly reach such dimensions that he would deem it his province to investigate, for the medical profession, the efficacy of drugs and compounds for the purpose of adding a new remedy to our pharmaceutical list. Let us hope that he would have sufficient perspicacity to comprehend the fact that any conclusion that he, as a layman, might reach in such matters, even though he might previously have been a manufacturer of furniture, or even a harness-maker, would hardly possess sufficient scientific value to commend them to anyone, except, possibly, an interested stockholder or the poor, ignorant charity patient, whom it is his duty to protect from charlatanism and imposition.

But not only the illogical position in which the Commissioners have placed themselves, but also the great wrong they are doing, by lending the moral support of Bellevue Hospital to a secret, capitalized nostrum, has already been made clear to them in the columns of the News. The error of their way has been pointed out, and a method of retreat consistent with dignity and self-respect has been within their grasp. But each day of persistence in their present course is burning their bridges behind them; and the time is fast approaching when the profession and the community will rise in their indignation and insist that the present Board shall be wiped out. They are failing of their duty in one direction, while they overstep their prerogatives in another. As our esteemed contemporary, the *Medico-Surgical Bulletin*, says:

"We are determined that no injustice shall be inflicted on the pauper; that he shall not be experimented with in any way, but that, on the contrary, he shall receive the treatment which is his due, all the more so because he is defenseless. Stop this nostrum business at once, therefore, Mr. Commissioners, or you will find your heads in a worse hornet's nest than you ever came in contact with in your younger days."

THE FALSE AND THE TRUE IN PHYSICAL BEAUTY.

We sometimes imagine that the tedious "setting-up drill" of all systems of military training is mainly for the purpose of giving the lines of the regiment a uniformly erect appearance upon parade, chiefly a matter of display, but this is far from the truth. On the contrary, it is insisted upon so invariable because the experience of countless generations has shown that the elements which make up an erect, "soldierly" bearing are the very ones which indicate the development of the highest possible degree of vigor, of speed, and of endurance.

The same will be found true of the various regions and parts of the body. We will begin with a region where the standards are supposed to be entirely at variance, the waist line, whose flowing curves from armpit to hip are rightly regarded as forming the chief beauty of the trunk outline. Fashion and popular taste demand simply a rapid inward slope to as small a waist as possible, regardless of all other elements of the curve; physiology and hygiene denounce this as unhealthy and crippling. Beauty and health appear to be at loggerheads here. But it is only with a false ideal of beauty that there is any conflict; call in the artist, the anatomist, to settle the dispute, and he will instantly decide with the physiologist. The ideas of "beauty" of the fashion-plate, the modiste, and Mrs. Grundy, are often widely different from those of the artist, the architect, and the naturalist; and it is with the latter only, that we are concerned. We may well paraphrase Madame Roland and exclaim: "Oh Beauty, what crimes are committed in thy name!" In the vast majority of these conflicts between beauty and common sense, the fault lies in a false ideal of beauty. The ideal waist of the artist is that of the Venus de Milo, and every line of it fulfils to perfection the demands of the hygienist for the highest lung power, combined with ease and vigor of movement.

Another similar instance of conflict between grace and efficiency, is that between the popular and hygienic ideals of a beautiful foot. These differ widely indeed. The popular demand in a feminine foot is that it shall be a narrow, pointed elongated body curved, or more accurately humped, into a nearly horse-shoe shaped arch, the pillars of which are within a few inches of each other, and consist of the compressed tips of the toes, and a high narrow heel brought forward almost directly under the center of gravity. Its functions as an organ of support and locomotion are ruthlessly disregarded, and instead of a series long, low, graceful arches, it is distorted into the resemblance of a link of sausage pointed at one end, or a banana in opisthotonos.

The physician, the skilled pedestrian, denounce it as deformed, useless, painful, and almost disabled; and again, the artist cordially unites in their attack, and demands the very same outlines that they do.

The plan of the healthy, natural foot is an exquisite combination of arches—one long and low from the heel to the balls of the toes, the other short and high, crossing this at right angles a little in front of the ankle-joint. These are composed mainly of a number of wedge-shaped bones, but there is little that is "bony" or rigid about them, as their form is mainly preserved by the tension of three muscles of the leg, whose tendons attach themselves to both the upper and lower surface of their keystones in a most ingenious manner, if we may use such a term with becoming reverence. Thus the weight of the body is naturally supported upon the intersection of two graceful, yielding, living arches, which, by their expansion and contraction, give a beautiful, springy elasticity to the gait. But in order to do this, they must, like all other springs, expand so that the foot ought to become markedly both longer and wider when weight is placed upon it. For this change in form, the modern "pretty" shoe makes absolutely no adequate provision, and not only this, but by throwing a ridiculous peg-shaped heel far forward to give an appearance of shortness to the foot, the longitudional arch is completely broken, the weight thrown directly upon the sensitive instep, the center of gravity of the whole body disturbed, and the elasticity of the gait destroyed.

Mechanically, the human foot is one of the most exquisitely adjusted, effective, and most enduring instruments in the world—it will run down and outlive any hoof, pad, or paw that moves. Artistically, for beauty of outline, harmony of curves and dimples, and grace of movement, it is equally unsurpassed. Here again, beauty goes hand in hand with strength, and fashionable deformity with feebleness.

The beauty of finely molded shoulders and rounded arms, and tapering wrists, is dependent not upon the form of the bones, nor even upon the amount of adipose or fatty tissue—mere plumpness is not beauty—but upon the live contour and rippling grace of muscle.

As for beauty of complexion, although universally decried as only "skin deep," in its natural

and only truly attractive form, it affords one of the best and most reliable indices of health and vigor. It may be imitated, but no paints, cosmetics, or "local treatments" of any sort can begin to reproduce the rich, warm, living depth of coloring, the translucent creamy whiteness, and the velvety gloss of surface which is as absolutely dependent upon pure blood and springy muscle, as a red June rose is upon its vigorous stem and roots in a fertile soil. A fine complexion instead of a mere surface finish, is the exquisite blossom of health and purity throughout the entire body, and literally "goes to the bone" as its counterpart "ugliness" is proverbially declared to do. An artificial complexion usually deceives nobody but its wearer.

In that important realm of decorative art, dress, the coincidence between beauty and healthfulness is no less striking. From the Greek chiton and the Spanish mantilla to the graceful Persian divided skirt and mantle, which the celebrated Worth kept hanging upon the walls of his studio as his ideal of the beautiful in the feminine costume, the lines of artistic beauty and of hygienic utility coincide almost absolutely. The corset, the bell-skirt, with its "street-cleaning" attachment, the crippling multiplicity of petticoats, and the ridiculous bustle, are offenses alike against the canons of art and the rules of health.

LATEST DEVELOPMENTS OF THE ROENTGEN X-RAYS.

Improvements of great importance have been effected by the General Electrical Company of Berlin in the Röntgen apparatus, by the employment of the new vacuum tube devised by Dr. Max Levy, the engineer of the Company. It is now possible to inspect the interior of Highmore's antrum, the frontal sinuses, the throat, the heart, and the lungs, through the use of this tube and the fluorescent screen. Levy's vacuum tube contains two concave electrodes, with a disk of platinum midway between them tilted at an angle of forty-five degrees. The disk is coupled to one of the electrodes, and the wires of the induction coil are attached so that the anode is duplicated. The fluorescent screen used is about ten by eighteen inches in measurement. Its surface is covered by small crystals of platinocyanid of barium dusted on after covering it with some adhesive material. It has been found by several experimenters that impregnation of a cardboard surface with this or similar material does not furnish a screen that will be fluorescent. It is necessary that the crystalline form of the substance used should be retained, in order that the picture may be seen on the screen.

In the past, the utility of the skiagraphic process has been limited by the fact that it has been impossible to focus the rays with certainty to any required depth in the opaque subject. The result was experimental in every case, and not until the skiagraphic negative had been developed, after a tentative exposure to the invisible rays, could the operator know what he had obtained. By means of the screen, however, a definite view can be obtained at once, and a skiagraph need not be made at all. Immediate inspection is possible with Levy's tube and the screen. In a test made in the offices of the London *Lancet*, pictures of the contents of the thorax, of the neck, and of the stomach were shown, one after the other.

The practical utility of the apparatus is seen in certain cases of disease in which valuable knowledge was obtained by inspection of the screen. In a case of arteriosclerosis, in a man aged fifty-six years, the thickened condition of the radial and ulnar arteries was seen, as well as the doubly increased size of the aorta, and the fact of the descent of the diaphragm with each inspiration to a distance of only three-quarters of an inch was accurately observed. In another case, that of a young man aged twenty-six, who had suffered from a pulmonary hemorrhage a year and a half previously, shadows due to the calcification resulting from the old disease were seen in the right lung, while the other appeared normal. These results could not be reached by other methods of examination. The diagnosis of enlargement of the heart was confirmed in two cases of mitral disease by the enlarged shadows on the screen. One of these cases showed also great hypertrophy of the left ventricle. Calcification of the aorta was revealed in one case. The improved Röntgen apparatus has thus become valuable, in confirmation of diagnosis

not only, but also in deciding with precision concerning existing conditions, which otherwise would be obscure and puzzling.

ECHOES AND NEWS.

Meeting of the British Medical Association for 1897.—The British Medical Association at its recent meeting in Carlisle accepted unanimously the invitation of the Montreal branch to meet in Montreal in 1897. The date of the meeting has not yet been positively decided upon, but will probably be the latter part of August.

Prince Bismarck an M.D.—On the occasion of the twentieth anniversary, on July 16th, of the opening of the Imperial Office of Health in the city of Jena, the faculty of the university conferred upon Prince Bismarck the honorary degree of M.D. Prince Bismarck is now possessed of all the doctor's degrees in the gift of the German universities.

Poisoned by a Woman's Decayed Tooth.—Dr. D. C. Sutherland, a dentist of Baltimore, is suffering from blood-poisoning, which he contracted while extracting a much-decayed tooth, a piece of which broke off and flew into Dr. Sutherland's left eye. Symptoms of blood-poisoning appeared, and it is feared that the eye may have to be removed.

Dr. Love and the Marion-Sims College.—Dr. I. N. Love has found it incumbent on him to sever his connection with the Marion-Sims College of Medicine of St. Louis. The members of the Faculty of that institution embrace the occasion to express their appreciation of his past services and to extend to him their hope that in all his future connections he will find both pleasure and profit.

Formalin in Ophthalmic Practice.—Dr. Dahrenstaedt, an eye specialist, has employed formalin with extraordinary success in two cases of ulcus serpens corneæ with hypopyon. Both of the patients came under treatment on the same day. Instillations of formalin, one part in two thousand, were made every hour from six in the morning until eleven in the evening, occasionally a drop of atropin solution being also injected. In five or six days both eyes were quite out of danger, and after a fortnight the healing process is still going on favorably and without irritation.

Veratrum Viride in Eclampsia.—Dr. Charles Jewett of Brooklyn, N. Y., is engaged in collecting statistics with reference to the value of veratrum viride in the treatment of puerperal convulsions. He will be glad to receive brief reports of cases from physicians who have had experience with the drug. What is especially desired is a statement of the number of convulsions in each case before the veratrum was administered, the quantity of the drug used, the mode of administration, and the results obtained. Due credit will be given.—*Brooklyn Medical Journal.*

The Difference Between the Highwayman and the Quack.—The ancient highwayman was a considerate person. His demands might sometimes seem urgent, but they kept within certain bounds. He gave you a choice of evils. If you would surrender your money, you might keep your life; and doubtless he frequently praised himself for easing you of that which is often a snare. He merely demanded your money or your life. The modern quack doctor is a much more bloodthirsty character. He has no such scruples as the highwayman, and no such moderation in his demands. With him there is no alternative. He makes his victim pay him for robbing him of his health. He wants both money and life.

The Lowest Possible Death-Rate.—The *American Practitioner* asks the question, What is now regarded as the minimum death-rate for an urban population? The late Dr. Parkes fixed 17 per 1000 as the "mortality incident to human nature," and in his time—the infancy of hygiene and sanitation—even that figure seemed Utopian. But what shall it be now fixed at in view of the reduced rate in Greater London? In 1894 the death-rate had fallen from 20.5 for the decennium, 1881–90, to 17.7 per 1000; and last year, 1895, when the mean was 19.7, there were sanitary areas in the great metropolis with the following figures: Wandsworth, 14.8; Lee, 14.5; Lewisham, 14.4; Stoke Newington, 13.4; and Hampstead, 12.

Intrinsic Value of Public Parks.—That public parks in cities are good investments from a sanitary standpoint goes without saying. That they are also profitable as a pecuniary investment is shown in a recent report by J. Clyde Power, landscape engineer, recommending extensions of the park system in Indianapolis. He cites New York as a notable instance of the great increase of value accruing to land in the vicinity of parks. In 1856 the assessed valuation of the three wards adjoining Central Park was $20,429,565; in 1873 it was $236,081,515—a gain in seventeen years of $215,651,950. The natural average increase of three other wards in the city, taken from the total excepting those adjoining the park, showed only $53,000,000, thus proving the earning capacity of the park to be $183,081,515. In Brooklyn, in 1864, Prospect Park containing 515 acres, was acquired, and the increase in the valuation of surrounding property in three years was thirty-eight per cent.

Medical Progress in Japan.—Competent European critics announce that the medical service of the Japanese army in the late war between Japan and China was conducted with a thoroughness and efficiency that give it a first rank even among the western nations. This is another evidence of the rapid strides that Japan is making in her modern civilization. It is hardly forty years since medicine in Japan was represented by superstition and charlatanism that surpassed even the crude appliances of the Middle Ages. Now the medical faculty of Tokyo University is said to be as perfectly organized and administered as that of Berlin University. The medical classes in the University and schools are crowded with students who zealously covet the diploma of Scholar in Medical Science, which is the equivalent for the American M.D. Hospitals for all classes of diseases have been instituted in Tokyo,

and the chemical and bacteriological laboratories are abreast in their work with Germany and France.

Doctors and Lawyers.—In the speech of Mr. Justice Vaughan Williams, at the annual presentation of prizes to the students of the Charing Cross Hospital Medical School, he declared that there was a considerable affinity between the professions of law and medicine. Both required the same qualities, both were the recipients of confidences from their clients, and he would add that the clients rarely found their confidences misplaced. He, as a lawyer, often came into contact with doctors in the law courts, where the most important issues were often determined solely on the evidence of medical experts, who were, for the most part, safe guides in the administration of justice. One point, however, in which the professions differed, was that the medical profession was essentially progressive, while the legal profession was in a sense stationary. If the doctors of the last century came to life again, they would know comparatively nothing of contemporary medical science, but if the judges of former times were installed in the law courts to-morrow, they would try the cases quite as well, if not better, than the judges of to-day.—*British Medical Journal.*

Baths in the Public Schools.—While this subject is being agitated in Boston and some other parts of this country, the city of Milan has brought it to a practical trial. The experiment was recently made in that city at one of the communal schools, in the presence of civic representatives, of the municipal medical adviser, Dr. Uffreduzzi, and of Dr. Sacchi, of the clinical staff of the Ospedale Maggiore. Forty boys, accommodated in a disrobing-room fitted with benches, were made to strip, and covered only by their large drying towels, were led in relays of five to a contiguous hall, where they were all made to take the douche. Thereafter, provided with soap, they cleansed themselves from head to foot with fresh water and returned to the disrobing-room to dry and dress themselves. The mechanism of the douche is simple. Five small reservoirs are suspended in a row at a height of two and a half yards from the floor and furnished, laterally, with two chains. Pulling that on the right the boy is douched *a colonna* (in a volume of water), or pulling that on the left he is douched *a pioggia* (in a shower). The locale has been modeled on the lines of similar locales in barracks, and may be heated in winter.

Ten Hygienic Aphorisms.—The late Dr. Frank H. Hamilton, of Bellevue Hospital, is said to have framed the following decalogue of health precepts: (1) "The best thing for the insides of a man is the outside of a horse. (2) Blessed is he who invented sleep—but thrice blessed the man who will invent a cure for thinking. (3) Light gives a bronzed or tan color to the skin; but where it uproots the lily it plants the rose. (4) The lives of most men are in their own hands, and, as a rule, the just verdict after death would be—felo de se. (5) Health must be earned—it can seldom be bought. (6) A change of air is less valuable than a change of scene. The air is changed every time the wind is changed. (7) Mold and decaying vegetables in a cellar weave shrouds for the upper chambers. (8) Dirt, debauchery, disease, and death, are successive links in the same chain. (9) Calisthenics may be very genteel, and romping very ungenteel, but one is the shadow, the other the substance, of healthful exercise. (10) Girls need health as much—nay, more than boys. They can only obtain it as boys do, by running, tumbling—by all sorts of innocent vagrancy, At least once a day girls should have their halters taken off, the bars let down, and be turned loose like young colts."

The Anti-Science Crusade.—Under the specious plea of preventing cruelty to animals, a crusade is constantly being waged against science and common sense. The crusade against physiological inquiry is really one against the acquisition of knowledge by which life can be saved, and recent antiscientific agitators go so far as to urge that patients in hospitals should be "protected" against treatment by which their diseases can be cured. "Knowledge" is often said to be "power;" and the particular form of knowledge against the attaining of which these onslaughts continue to be made has indeed shown itself to be a power in the saving of life. When one serious disease comes on the top of another, then it is apt to go hard with the patient, and for years back it has been found that of all the complications of convalescence from scarlet fever, the occurrence of diphtheria has been the most terrible. Far more than half of the patients so attacked died until the introduction of antitoxin. Then the whole aspect of affairs was changed, for the death-rate fell, so soon as antitoxin was used in treating the disease, from an average of 63.0 per cent. during the preceding three years, to one which at the outside, even after deducting the mild cases, was not more than 7.5 per cent. This is sufficiently striking, but since the publication of the official report even better results have been obtained, long series of cases having occurred without any death at all. Now at what expense of cruelty have these results been obtained? A few healthy old horses which, if not used for this purpose, would either have already gone to the knackers' yard, or would still be enduring the hard fate which old horses must suffer when they have to earn their living by labor in the streets, are now well housed, well fed, and well groomed, on the one condition that they now and again put up with such a bleeding as, not so long ago, was voluntarily undergone by healthy men as part of the routine of spring and autumn. Yet because this thing goes by the name of vivisection, these writers howl, and would leave the ignorant to demand that these horses should be restored to the miseries of the streets, and that these children should again be handed over to the most cruel of all deaths.—*British Medical Journal.*

CIRCULAR LETTER.

THE DEATH OF GENERAL FESSENDEN.

To the Medical Officers of the U. S. Marine Hospital Service:

IT is with regret that I have to announce to the medical officers of the service, the death, on the 23d inst., from a complication of heart and kidney affections, of Surgeon

Charles Stewart Davies Fessenden. Surgeon Fessenden was the senior surgeon of the corps, having served since April 4, 1861—a period of more than thirty-five years. He was born in Portland, Me., February 23, 1828, and was of a family noted in the annals of his native State and the nation. His father, General Samuel Fessenden, was for many years a leader at the bar of Maine, and his eldest brother, William Pitt Fessenden, was the distinguished senator of that State, and during the administration of President Lincoln became Secretary of the Treasury. Two nephews of Surgeon Fessenden rose to the rank of brigadier-general during the Civil War, and others have been prominent in private life, two of them in the profession of medicine.

Surgeon Fessenden was fitted for college at the Portland Academy, and in 1844 entered Harvard University, where he pursued his studies for one year. Leaving Harvard, he became a student at Bowdoin College, from whence he was graduated in 1848.

He studied medicine under Charles W. Thomas, M.D., of Portland, Maine, and attending medical lectures at the Medical School of Maine, and also in New York, was graduated in 1851 from the Medical School of Maine. From 1853 to 1856 he was physician in charge of the Portland City Hospital, after which date he became a private practitioner until his appointment as surgeon in the Marine Hospital Service, in 1861.

During the period of his membership in the corps, he served as commanding officer at the ports of Portland, Me.; New York, N. Y., St. Louis, Mo.; Norfolk, Va.; Louisville, Ky., and Mobile, Ala. During this period he was also a member of three boards of medical officers convened for the examination of applicants for the Service, and of eight boards convened for the physical examination of candidates for admission to the Revenue Cutter Service, besides serving on various special details as inspector.

On account of the failure of his health in the fall of 1895, he was ordered to appear before a board of medical officers for physical examination, and, in accordance with the report of the board, was placed on waiting orders November 22, 1895.

During the few months which intervened between this date and his demise, Surgeon Fessenden resided at Salem, Mass., at which place his death occurred.

Respectfully yours,

WALTER WYMAN,

Supervising Surgeon-General M. H. S.

SPECIAL ARTICLE.

POINTS OF INTEREST TO MEDICAL MEN VISITING PARIS.

BY F. O. CHAMBERLAIN, M.D.,
OF PARIS.

ALTHOUGH there are among the traveling public annually visiting Paris a large number of American practitioners and students of medicine, very few see anything of medical work and progress in this great center. Unfamiliarity with the language is one of the chief deterrents, and limited time another; yet, in spite of these, the visitor could still derive much pleasure and considerable profit from an inspection of the clinical field, were he provided with the information requisite for his proper guidance. It is with the view of supplying, in some degree, this information that the writer, an American practitioner in Paris, takes pleasure in presenting, through the columns of the MEDICAL NEWS, certain points for the consideration of his colleagues coming abroad.

The twenty-five special and general municipal hospitals, which are open to the visitor, are divided about equally between the right and the left banks of the Seine, and are situated, with few exceptions, at a considerable distance from each other. For this reason, a central location, such as the vicinity of the Opéra, will be found to be most convenient for the visitor, unless he should wish to follow regularly the work of some special service. Should expense be a matter of consideration, accommodation may be found at a more moderate rate upon the left bank of the Seine. Upon that side of the river are situated the buildings of the Ecole de Médecine in the street of the same name. The faculty consists of thirty-four professors, with thirty-seven assistant professors, in active service. The students number nearly five thousand. There is no hospital connected immediately with the school, but the following permanent official clinics (Cliniques de la Faculté) are conducted by professors of the faculty:

With the exception of the obstetrical services (for which non-transferable cards are delivered gratuitously upon application at the office of the Secretary of the Faculty), the visiting medical man is admitted to all of the official clinics without formality of any kind, Much of the surgical work in the Paris hospital ampitheaters is performed under conditions similar to those obtaining elsewhere, but in the small rooms used for abdominal and most gynecological operations, the visitor is allowed the same freedom and facilities for viewing the work as those enjoyed by the house staff or the operators' assistants, a privilege less freely accorded the stranger in other countries.

For changes in the official program, the visitor should consult the posters (Tableaux des Cours et Cliniques de la Faculté) in the courtyard of the Ecole de Médecine. Copies may usually be obtained for a small gratuity, through the uniformed janitor in the hall (10 A.M. to 4 P.M.) leading to the Secretary's office, which, like that of the Dean, is in the school buildings. The Dean receives on Wednesday from 9 to 10.30 A.M., and the Secretary on Tuesday, Thursday, and Saturday, from 12 to 1 and from 2 to 3 P.M. The time at the disposal of these officers is so limited that the visitor desiring to apply for special information or favors had best do so by letter, or verbally through the First Assistant (Monsieur Lesieur) at the Secretary's office, window No. 1, Bureau de Reuseignements, 10 A.M. to 4 P.M.

During the School vacation, beginning in August and ending in October, the official clinics are discontinued. However, the visitor so inclined will find ample opportunity for observing work in the Paris hospitals at all seasons. Besides the Cliniques de la Faculté, there are

many services at which the visiting medical man is made welcome upon the presentation of his card. Of these services, the following are some of the most interesting, on account of the eminence of the men in charge, the organization of the work, or the novelty of the methods pursued:

Hôpital de la Salpêtrière.—Mental diseases, Dr. Déjerine, Thursday, 5 P.M.; Electrotherapy, Dr. Vigouroux, Tuesday, Thursday, Saturday, 12 to 3 P.M.

Hôpital Saint Antoine.—Nervous Diseases, Drs. Ballet and Brissaud; General Medicine, Dr. Hanot. An address upon the Medical Clinics of Paris will be delivered by Dr. Hanot, Tuesday, 5 P.M., in the amphitheatre of the hospital.

Hôpital Tenon.—Surgery, Dr. Tuffier, Tuesday, Thursday, Saturday, 10 A.M.

Hôpital Trousseau.—Diphtheria, Dr. Hutinel, Serumtherapy on an extensive scale.

Hôpital Necker.—Surgery, Dr. Le Dentu, Tuesday, Thursday, Saturday, 9 A.M.; Abdominal Operations, Dr. Le Dentu, Thursday, 9 A.M.; Genito-urinary, Dr. Guyon, Wednesday, Saturday, 9 A.M.

Hôpital des Enfants Malades.—Medical, Dr. Grancher, Tuesday, Saturday, 4 P.M.

Hôpital Laennec.—Therapeutical, Dr. Landouzy, Thursday, 10 A.M.

Hôtel Dieu.—Surgical, Dr. Duplay, Tuesday, Friday, 9.30 A.M.; Abdominal operations, Dr. Duplay, Thursday, 9.30 A.M.; Medical, Dr. Charrin, Monday, Friday, 10 A.M.; Ophthalmological, Dr. Panas, Monday, 9 A.M.; Ophthalmological Operations, Monday, 10 A.M.

Hôpital Saint Antoine.—Medical, Dr. Hayem, Tuesday, Saturday, 10 A.M.

Hôpital Sainte Anne.—Mental Diseases, Dr. Jaffroy, Wednesday, Saturday, 9.30 A.M.

Hôpital Saint Louis.—Cutaneous and Syphilitic Diseases, Drs. Besnier, Du Castel, and Hallopeau. The facilities at the St. Louis for the practical study of syphilis and diseases of the skin are unequaled. In addition to immense clinical material and a corps of specialists of international reputation, this hospital possesses a museum containing a remarkable and admirably arranged collection of wax casts, representing cutaneous lesions of great variety and in all stages. Surgery, Dr. Richelot; operations in the Pavillon d'Isolement several times weekly, in the morning chiefly gynecological, and illustrating certain points of technic original with the operator.

For full information respecting the above-mentioned services, the visitor should apply at the respective hospitals, ask the janitor to direct him to the service required, and there ascertain particulars from the interne on duty. Of the numerous private clinics, one of the most interesting is that of Dr. Apostoli, No. 19 Rue du Jour (Tuesday, Thursday, Saturday, 5 to 7 P.M.), where several thousand cases annually of uterine fibroids are treated by the Apostoli method of galvano-cauterization. Here also may be seen numerous patients under treatment by the new method of alternating currents of great intensity. At No. 3 Rue Christine may be seen (for hours of admission apply at clinic) Dr. Fort's so-called linear electrolytic method of dilating urethral strictures. The Institut Pasteur, No. 25 Rue Dutot, may be visited by permission of the Director on the premises. This institution is not connected with the medical school, and foreigners are admitted, under certain conditions, to work in its laboratories. Information concerning these conditions, however, would be of interest only to those desiring to pursue continuously special work, and would therefore be beyond the scope of the present description.

Hospital.	Clinic.	Days.	Hour.	Professor.
Charité. Rue Jacob.	Surgical. Medical.	Mon. Wed. Fri. Tues. Sat.	9.30 A. M. 10.00 "	Tillaux. Patain.
Pitié. Rue Lacépède.	Medical. Surgical.	Tues. Sat. Mon. Fri.	9.30 A. M. 9.30 "	Jaccaud. Berger.
Necker Rue de Sèvres.	Surgical. Abdominal Operations. Genito-urinary.	Tues. Fri. Thursday. Wed. Sat.	9.30 A. M. 9.00 " 9.00 "	Le Dentu. " Guyon.
Enfants Malades. Rue de Sévres.	Medical.	Tues. Sat.	4.00 P. M.	Grancher, (Marfan, substitute)
Laennec. Rue de Sévres.	Therapeutical.	Thursday.	10.00 A. M.	Landauzy.
Hôtel Dieu. Place du Parvis de Notre Dame.	Surgical. Abdominal operations. Medical. Ophthalmological. Ophthalmological Operations.	Tues. Fri. Thursday. Mon. Fri. Mon. Fri. Mon. Fri.	9.30 A. M. 9.30 " 10.00 " 9.00 " 10.00 "	Duplay. " Charrin. Panas. "
Saint Antoine. Rue de Faubourg St. Antoine.	Medical.	Tues. Sat.	10.00 A. M.	Hayem.
Sainte Anne. Rue Cabanis.	Mental Diseases.	Wed. Sat.	9.30 A. M.	Jaffroy.
Saint Louis. Rue Bichat.	Cutaneous and Syphilitic. Diseases of Scalp. Dermatological Operations.	Wednesday. Thursday. Thursday.	11.00 A. M. 9.00 " 10.30 "	Fournier. " "
Salpêtrière. Boulevard de l'Hôpital.	Diseases of Nervous System.	Tues. Fri.	10.00 A. M.	Raymond.
Clinique d'Accouchements. Rue d'Assas.	Obstetrical visit.	Daily.	9.00 A. M.	Tarnier. (Bar, substitute).
Clinique Baudelocque. Boulevard de Port Royal.	Obstetrical visit.	Daily.	9.00 A. M.	Pinard.

mirable clinical course in nervous pathology is conducted at this hospital during the winter months by Dr. Ballet, Sunday, 10 A.M., Diseases of the Brain; and by Dr. Brissaud, Thursday, 10 A.M., Diseases of the Spinal Cord.

Hôpital des Enfants Malades.—Diphtheria, Dr. Sevestre, Serumtherapy on an extensive scale.

Hôpital Broca (Rue Broca).—Gynecology, Dr. Pozzi, operations in the morning, two or three times weekly.

Hôpital Beaujon (Rue du Faubourg St. Honore).—Surgery, Dr. Lucas-Championnière, Abdominal Operations in the morning, twice weekly.

SOCIETY PROCEEDINGS.

BRITISH MEDICAL ASSOCIATION.

Sixty-fourth Annual Meeting, held in Carlisle, England, July 28, 29, 30, 31, 1896.

FIRST DAY, JULY 28TH.

DR. HENRY BARNES delivered the President's address upon

THE MEDICAL HISTORY OF CARLISLE.

After referring to the power and influence of the British Medical Association, which he pronounced the largest and most powerful medical society which the world has ever known, he offered a hearty and cordial welcome to the

assembled members. The great purpose which had caused such a large body of men to come together under one name was to render our profession of the highest service, not only to the individual but the state, by taking our share and giving our advice in the framing of laws, in the regulation of charities, and by the elevation of all that constitute the education of a man of science, the physician, the surgeon, or the guardian of the public health. He then entertained his hearers with an elaborate account of the medical history of the City of Carlisle. It is one of the oldest cities in the British empire, and in referring to the early struggles of medicine within its limits, the author presented a bird's-eye view of the progress of medicine throughout the entire British islands. He dwelt at some length upon the value of the work of his predecessors, and of the debt that posterity owes to them. Carlisle had suffered from numerous visits of the plague, and had been sorely afflicted with epidemics of smallpox. The mortality from the latter disease at the end of the last century accounted for nearly one out of every seven deaths in Carlisle. Since that period it has been a well-vaccinated community, and now the disease is almost entirely unknown. The most distinguished physicians during the latter part of the last century were Dr. Wm. Brownrigg and Dr. Heysham. Dr. Heysham conceived the idea of collecting statistics of mortality, and by carefully recording the births, marriages, diseases, and deaths of the people, he accumulated the data upon which the "Carlisle Tables of Mortality" were based. The value of the Carlisle tables were speedily recognized, and one by one the leading life insurance companies, both in England and America, adopted them as the basis of their calculations.

Second Day, July 29th.

Sir Dyce Duckworth delivered the address in medicine, upon

the prognosis of disease.

In dwelling upon the importance of the subject of prognosis, he said that our minds have been probably too exclusively intent on acquiring knowledge of facts, and few among us have had time to apprehend the great general laws which underlie and govern them. The education of to-day is perhaps rather overladen with details, and somewhat barren of the inculcation of general principles. We must, if we are to be great in medicine, sometimes lift our eyes from the microscope and away from the engrossing researches of laboratories, and rising to a higher platform, survey the large fields which lie before and beyond us. We need both the talent of the ancient philosopher, who had an eye for general truth and the qualities of the modern observer, whose eyes are so intently set on particular facts. The problem now before the profession is to combine these in due harmony, and by the light of our most recent attainments, to cast our eyes forward and foresee the result of disease. No two cases being alike, we must have regard as to what disease means to the particular individual under consideration.

In cases of enteric fever, obese and elderly patients are bad subjects. The existence of chronic renal disease is incompatible with recovery from the continued fevers, and the presence of cardiac valvular disease adds greatly to the danger therefrom. Meteorism, delirium, and tremor are also of serious import, indicating failure of nervous power. Early hemorrhage is unimportant; late hemorrhage signifies exhaustion and deep ulceration of the bowel. Vomiting in the third week may be the precursor of peritonitis. Epistaxis is not serious unless profuse, when it may prove fatal. Abundant eruption of the papules does not denote any special gravity, and *per contra*, is no ground for belief that the case is a mild one. Excessive diarrhea is unfavorable. Perspirations, apart from other severe indications of weakness, are not important.

The malignant varieties of the exanthemata and of diphtheria admit only of the worst prognosis at any age and under all conditions. Prognosis is grave in the exanthemata, according to the early treatment, age of the patient, and the abundance of the eruption. High fever, delirium, hemorrhages, membranous angina, laryngitis, and parotid bubo are of evil augury in scarlatina, likewise suppression of urine from intense toxic glomerular nephritis. In the milder forms of scarlatino-polyarthritis, the prognosis is good. Purulent arthritis is almost uniformly fatal, unless confined ultimately to one joint. Capillary bronchitis and a collapse of large tracts of the lungs constitute the worst symptoms of measles in children. Recent experiences of influenza have taught us the special dangers of the peculiar pneumonia of that malady in the case of persons past middle life, and of the grave cardiac asthenia that may long persist.

Prognosis in diphtheria is certainly less serious now than was the case five and twenty years ago, and we note the exceptional danger to children under two years of age. Early tracheotomy, with aseptic treatment and intelligent nursing, has alone saved myriads of lives. Antitoxin treatment, in my experience, has proved of decided value in diminishing the death-rate. If a week elapse without laryngeal complications, we may fairly hope that the larynx may escape invasion by the membrane. After this, our anxiety relates to the welfare of the heart and of the nervous power of the patient. The spread of specific neuritis, with its varied symptoms, constitutes a danger sometimes little short of that induced by laryngitis. Nasal diphtheria should always excite concern. Delirium in diphtheria is also a bad sign. There is some risk of serious symptoms due to systematic intoxication in the adult, and more danger from laryngeal infection in the child.

According to Kanthack and Lloyd well-marked leucocytosis, gradually falling, together with decline of temperature indicates a good reaction and justifies a favorable prognosis. Low leucocytosis, or an absence of this, with fever, is a bad sign. High leucocytosis with subnormal temperature is always a bad augury. Other observers, however, are not in agreement on these points.

If variola attacks persons with Bright's Disease a fatal issue is certain. The eleventh or twelfth day is the most critical and laryngeal or pulmonary complications are the most fatal.

Erysipelas is likely to prove fatal if it starts in with severe constitutional disturbance and vomiting, especially

in the aged and in previously intemperate persons. In the newborn, if the naval is attacked, fatal issue is common.

In regard to tetanus, our experience of specific antitoxin treatment is as yet insufficient to enable us to form a decided opinion of its value, but it appears to be encouraging.

If organisms be present in the blood of a patient and capable of cultivation from it (pyemia and septicemia) the prognosis is bad.

Prognosis in relation to tuberculosis is a large question and the factors on which determination depends vary greatly with the individual and his environment. Undoubtedly, the prognosis of all disorders of a tuberculous nature admits of a more hopeful view at present than formerly. Rational treatment, followed upon exact pathology, explains why this is so. The tissue resistance of the individual counts for much. Hughes-Bennett taught, and I think correctly, that no disease was so often recovered from as tuberculosis. Peritoneal tuberculosis often ends favorably. Meningeal tuberculosis is the most deadly of all forms and is but rarely survived. The genito-urinary forms are all of grave import. General miliary tuberculosis is as fatal as any malignant disease of which we have knowledge. Without doubt a gouty habit of body tends to inhibit and retard tuberculous processes. Valvular heart disease with hypertrophy and cardiac dilatation induce pulmonary congestion and the power to be inhibitory. Pregnancy retards active invasion in the lungs, lactation aggravates it. Pulmonary emphysema, asthma and chronic bronchitis delay the course of tuberculosis.

In diabetes we have to deal with two main classes of patients, the lean and the fat. The former present the worst cases, the disorder being more or less acute. As is now well recognized, the younger the patient, the worse the prognosis. Every additional decade of years helps toward a less serious immediate outlook. Speaking, generally, after forty years of age the outlook becomes less serious. Chronic cases of diabetes in the elderely may get on fairly well in presence of fine constitutions for thirty years. I have never known recovery from coma in any instance.

In rheumatic fever, if the seventh or eighth day be passed and no cardiac complication has supervened, we may not expect any form of carditis or of pericarditis, but if a relapse occurs, we may meet with this as a manifestation of the fresh attack.

In typhlitis many cases recover under judicious medical treatment. Perityphlitic abscess, if opened carefully, about the ninth or tenth day, generally heals favorably. Earlier surgical interference is very apt to lead to a fatal issue by toxic peritonitis.

In few diseases is the question of prognosis so important as in lobar pneumonia. All practical physicians now agree that a sthenic single pneumonia in a previously healthy young man gets well. Single or double pneumonia in a drunkard is fatal. Herpes labialis is a sign of good augury in a great majority of patients, and mostly accompanies cases in which a sharp crisis occurs on the sixth day. Abundant rusty sputa, bright in color, in a lean, even if elderly, patient are a good sign. Sweating and moderate diarrhea at the time of crisis are also favorable indications. Modern research has shown that leucocytosis is commonly of favorable import in pneumonia, and both laboratory experiments and clinical inquiry attest the value of this indication. Absence of leucocytosis is commonly a bad sign in any case. In diseases of the heart, the outlook is generally better than it was half a century ago. Pericarditis of rheumatic nature is very rarely fatal *per se*. With the practice of aseptic surgery purulent carditis is no longer to be regarded as necessarily fatal. Tuberculous pericarditis may be rather protracted, but is beyond recovery. Pneumopericardium is commonly fatal within two days. The principles on which the prognosis is framed in valvular disease are now well understood. All depends on the constitution, powers, habits, and environment as regards the integrity and nutrition of the cardiac muscular fibers. Intelligent treatment, instigated by accurate physiological research, has much to do with securing long immunity from fatal issues in all the varied evolutions of this disease.

Pernicious anemia admits now of less grave prognosis than formerly, owing to treatment with arsenic and marrow. Relapses are common. Osler knows of no case in males that remained well for five years.

In chronic parenchymatous nephritis, I have long been convinced that there is great variation in the course and outcome; and while some patients rapidly pass into conditions beyond recovery, others hold on for months, so long as care is taken in all respects. We think less gravely of uremia than our preceptors were wont to do, and by modern treatment with drugs, and occasionally by the older treatment in venasection, we find this grave condition more amenable to treatment.

In neuritis, of the whole group of conditions—a somewhat large and varied one—our prognosis is guided by consideration of the etiology and personal factors of the case. Cases often last for months and years, but the results are often quite remarkable if treatment be persisted in. Endemic neuritis, or beriberi, if early treated, is not so serious a malady as is commonly supposed.

Dr. Dickinson says that "the tongue has a whole book of prognostics written upon its surface." Among the conditions of the tongue, which favor a satisfactory prognosis in any case of any disease, are to be noted recovery of moisture and a cleaning of fur from the tip and edges toward the dorsal.

The author closed with the words of Hippocrates: "It appears to me a most excellent thing for the physician to cultivate prognosis; and he will manage the case best who has foreseen what is to happen from the present state of matters."

Third Day, July 30th.

Roderick Maclaren, M.D., delivered the address in surgery. His subject was

PREVENTIVE SURGERY.

By preventive surgery must be understood operative work which is entered upon or undertaken for some risk or sequence which we expect to result from an existing

condition, and not what is actually present at the time. It was formerly alleged, by men of great capacity and intellect, that such operations were attended by a greater mortality than operations of necessity; nature was endowed by them with the power of accommodating itself to the inevitable but of resenting mere expediency. We should be able to say to a patient, If you allow what now exists to continue you will experience certain definite unfortunate consequences. Our technic ought to be perfect, for though mistakes and oversights may sometimes be excusable in operations of emergency, in preventive operations they should have no place.

A large amount of preventive surgery has a causal relation to the throat and naso-pharynx. Enlarged tonsils and adenoid growths check growth and nutrition. It is often very striking to see the growth and development which follow the removal of large tonsils or adenoids. Few operations give so good results with so little risk or trouble. It should be the rule to operate on every discharging ear that does not get well by treatment. The mastoid cavities should be laid open, all diseased bone removed, all unwholesome structures scraped away, and everything made suitable for speedy healing.

Herniæ offer a field for preventive surgery, but not every hernia should necessarily be subjected to operation. A properly adjusted truss will relieve all symptoms in the majority of cases and will cure many. But among the miseries which may make long life a burden to its possessor there are none greater than those resulting from an enlarged prostate. Supra-pubic cystotomy with removal of enlarged prostate is at present the operation to be first considered. The resulting mortality is small, not more than ten per cent., and it must be kept in mind that the condition is a very fatal one. The operation of removing the testicles for enlarged prostate is too new, and the cases too few, to allow of any decided opinion as to its merits.

An opinion strongly held, both here and in America, by men whose surgical work entitles their views to the highest possible respect, is that every appendix vermiformis which has given rise to morbid symptoms should be cut down upon and removed when in a quiescent state.

Another disease holds out the prospect of a wide field for the extension of the preventive principle, viz., carcinoma. In the future a preventive surgery founded on fuller knowledge will do for cancer what we are steadily doing for so many other diseases—compress it within narrowing limits.

Perhaps the besetting sin of surgery is that it has a narrowing tendency. In preventive surgery we have a tendency in an opposite direction. This tendency brings us into immediate contact with what the physician and general practitioner are doing, making our life and work a portion of the vast organization for the prolongation of existence, and still further associates us with the great mass of scientific and intellectual advancement which lies outside the limits of any profession, of any nation, and of any time.

(To be continued).

TENTH ANNUAL MEETING OF THE AMERICAN ORTHOPEDIC ASSOCIATION.

Held in Buffalo, May 19, 20, and 21, 1896.

ROYAL WHITMAN, M.D., of New York, President.

FIRST DAY, MAY 19TH.

L. A. WEIGEL, M.D., of Rochester, read a paper on

THE RATIONALE OF GYMNASTIC EXERCISE AND PRESSURE CORRECTION IN THE TREATMENT OF SCOLIOSIS.

He summarized his views as follows: (1) Gymnastic exercise as an exclusive method of treatment must be limited to the very early stages, and to deformities which are postural, pure and simple; (2) exercises of all kinds are insufficient, even in comparatively mild cases; (3) treatment by mobilizing the spine should precede any attempt to develop the muscles; (4) removal of the superincumbent weight is the important part of the treatment, and is of great value in sustaining the effects of exercise; (5) over-development is to be avoided; and (6) empiricism should have no part in the treatment of scoliosis.

JACOB TESCHNER, M.D., of New York, present by invitation, read a paper on

THE RAPID CURE OF ROTARY LATERAL CURVATURE OF THE SPINE, AND OTHER POSTURAL DEFORMITIES, BY MEANS OF THOROUGH DEVELOPMENT, AND CORRECTIVE EXERCISES WITH HEAVY WEIGHTS.

He gave a demonstration of the method of carrying out these exercises. According to his view of lateral curvature, it was due to general muscular weakness, and habitual faulty position, and hence the whole muscular system should be developed. At each visit the patient is put to his individual limit, and it is found that this usually increases at each visit. He claimed that by this method he had succeeded in curing cases of lateral curvature in which there were bony and ligamentous changes, and marked rotation present. In the milder cases improvement was quite noticeable within two weeks, and a cure would often be effected in three months. He said that out of twenty-one cases treated by him according to this method, nineteen had been cured, and two had been very much improved at the time the treatment had been discontinued. The advantages claimed for the treatment were: (1) The improvement in the general health and in the muscular development; (2) a marked increase in the lung capacity; (3) a slower and more forcible heart action; and (4) that long after the cessation of the treatment, an improvement was noted in the muscular system and in the general health.

DR. S. KETCH of New York, said he agreed with Dr. Weigel, except that he would attribute some benefit to will-power. Regarding Dr. Teschner's paper, he would say that he was not yet convinced that it was necessary, or even advisable, to subject children and adolescents to such a severe course of gymnastics—indeed, he believed that the cases cured by this method could be treated with equal success by other and safer means. It was not difficult to secure an improvement in cases of lateral curvature by correcting the postural curves, but the only test of marked benefit, or of cure, was the amelioration of the

element of rotation. In his opinion, it was important to increase, and to maintain the lateral flexibility of the spine, and hence he would look upon the best method of treating lateral curvature of the spine as that one which combined the use of mild gymnastic exercise and the application of retentive apparatus.

Dr. John Ridlon of Chicago, said that he had tried these heavy exercises on only one patient, a girl of sixteen. This girl became greatly fatigued after making ten or fifteen movements with dumb-bells weighing one and a half pounds, and it was impossible to get her to put a five-pound bell more than five times. As there was no visible improvement in the case after four or five weeks of this exercise, he had abandoned further trial of the method.

The speaker then proceeded to criticise the incomplete and inaccurate photographic records presented by Dr. Teschner, objecting particularly to the absence of photographs of *cured* cases, and also of the best position the patient could be made to assume prior to the treatment. Without these, he said, it was impossible to judge of the merits of the method.

Dr. Reginald H. Sayre of New York, said that he could not accept the statement that development of one part of the muscular system must necessarily be at the expense of the remaining portion. In his opinion, there were many cases of lateral curvature which could not be well treated without mechanical appliances. If it were true that bone changes could be made to disappear by muscular exercise alone, it was certainly a novel and wonderful scientific fact. Until indisputable evidence to this fact was forthcoming, he must be in doubt regarding the kind of cure meant. Nor could he accept the statement that the improvement in muscular development continued after cessation of the exercises, for this was at variance with general principles.

Dr. A. J. Steele of St. Louis, said that he thought there was enough in Dr. Teschner's method to justify him in continuing his work along this line. He could not agree with Dr. Weigel that the spine could not be rendered flexible by means of jackets and similar apparatus.

Dr. Harry M. Sherman of San Francisco, said that while he agreed with those who considered the superincumbent weight the chief etiological factor, he could not but wonder why any bone in the body should be abnormally weak, unless possibly as a result of rickets in early life. He endorsed the use of mirrors as an aid to the proper performance of gymnastic exercises.

Dr. A. E. Hoadley of Chicago, said he considered the prime etiological factor to be "cellular tension," or debility. Such a condition, when present in the intervertebral cartileges, may result in marked shortening of the stature. He had known this to amount to as much as $1\frac{1}{8}$ inches between the time of rising and going to bed at night. When such shortening exceeded half an inch, deformity was invited.

Dr. W. E. Wirt of Cleveland, said that he agreed with Dr. Teschner regarding the increased flexibility of the spine produced by these heavy exercises, but he thought it was a mistake to pin one s faith on one method of treatment exclusively.

Dr. Hanna of Oberlin College, said that in the treatment of cases of lateral curvature she preferred massage to forcible manipulation, together with the use of the hot and cold douche.

Dr. Weigel said that he did not believe that the disadvantages of mechanical supports were as great as had been claimed. He could not believe, as Dr. Teschner had stated, that the muscular strength was increased from visit to visit by the heavy gymnastics.

Dr. Teschner, in closing the discussion, said he admitted the inaccuracies of his records, as of all known methods of recording such cases, but they were the best obtainable under the circumstances. He had made no attempt to pose his patients for their photographs.

Wm. J. Taylor, M.D., of Philadelphia, reported a case of

SPONTANEOUS DISLOCATION OF THE HIP.

which had evidently occurred about six months after a fall. The history clearly indicated that it was not a case in which the dislocation had been produced by the injury, and had been merely overlooked. As the dislocation had existed for fifteen years before coming under his observation, no attempt had been made to dislodge the head of the femur from its position on the dorsum of the ilium.

Several other members reported similar cases.

Joel E. Goldthwait, M.D., of Boston, read a paper upon

THE ANTERIOR TRANSVERSE ARCH OF THE FOOT,

in which he discussed the subject fully. He said that the cases of abnormality of the anterior transverse arch of the foot might be divided into two groups, viz., first, the relaxed form; and second, the rigid type with distinct bony change. The patient stated that the foot was becoming wider, and examination showed a callosity under the head of the second, third, or fourth metatarsal bone. The speaker thought that improper shoeing was largely responsible for the condition. In the treatment of the relaxed cases, it was most important to strengthen the front part of the foot by appropriate balancing exercises, and to relieve the strain on the ligaments and muscles by the application of a snugly fitting bandage, just behind the head of the first metatarsal bone. Immediate relief would follow the application of a pad of felt, so as to make pressure just back of the heads of the second and third metatarsal bones.

Dr. Ketch referred to a case in which the gouty diathesis, rather than bad shoeing, had caused the condition.

Dr. E. H. Bradford said that by means of the roller bandage and felt pads, he had relieved many cases. He had seen no case of true metatarsalgia in which the second metatarsal bone was depressed; they had all been in cases where the trouble was in the fourth metatarsal bone.

Dr. J. E. Moore of Minneapolis, said that he had met with this condition most commonly among nurses. His treatment had been successfully carried out along the lines recommended in the paper.

Dr. Kerr of Washington, D. C., said he had also found metatarsalgia associated with depression of the fourth metatarsal bone, and had relieved the pain and

disability by excision of the metatarsal joint, and sometimes also of the nerve.

THE PRESIDENT called attention to the fact that a proper shoe should be made so that the toes do not point upward, as they did in the ordinary shoe.

DR. GOLDTHWAIT, in closing, said that undoubtedly the chief cause was bad shoeing. In some cases there had been pain at the head of the fourth metatarsal bone, and in others between the second and third metatarsals.

The President's address was on

THE DEFINITION AND SCOPE OF ORTHOPEDIC SURGERY.

DR. WHITMAN suggested the following definition: "Orthopedic surgery is that division of surgery which treats of disabilities and diseases of the locomotive apparatus, and of the prevention and treatment of the deformities of the framework of the body."

INVESTIGATIONS ON FLATFOOT.

E. H. BRADFORD, M.D., of Boston, by means of lantern slides, showed the development and causation of flatfoot. These photographs compared the weak feet of shoe-wearing people with the strong feet of those who were accustomed to go about without shoes.

DR. WHITMAN commented upon the evident advance that had been made in the last decade in the knowledge and therapeutics of this subject.

SECOND DAY, MAY 20TH.

E. H. BRADFORD, M.D., of Boston, presented a paper on

THE TREATMENT OF ABSCESS IN HIGH DORSAL CARIES.

He advocated operation and drainage of the abscess. This operation should be begun by cutting down upon the tip of the transverse process, and resecting a portion of rib, after the manner of an operation for empyema. There was less danger to the heart and large blood-vessels if the incision were made on the right side.

DR. R. H. SAYRE said that Dr. Schafer of Chicago, in some cases of this kind, had passed in a probe and cut down upon it, and had then established through drainage from one side to the other.

DR. SHERMAN said that he had performed the operation in a case in which the abscess had perforated an intercostal space, and produced an accumulation under the skin. The diagnosis was comparatively easy if the way were made plain by the burrowing of the abscess between the ribs.

DR. KETCH referred to a case of very sudden death in a child suffering from disease of the second and third cervical vertebra. Although no autopsy could be obtained, it seemed fairly certain that death had been due to the direct pressure upon the respiratory center.

DR. GOLDTHWAIT said that he had seen the suddenly fatal case which had formed the text for Dr. Bradford's remarks. The cause of the sudden death remained unexplained, for the autopsy showed that the abscess had not ruptured, and there was no evidence of pressure on the spinal cord.

DR. BRADFORD, in closing the discussion, said that where there was disease of the axis and atlas, there was danger of direct pressure upon the respiratory center, but where the disease was lower down, and was associated with suffocative symptoms, it was fair to conclude that an abscess was present. The operation which he had advocated, was certainly a grave one, but it was intended to meet a grave emergency.

SAMUEL KETCH, M.D., read a paper on

SUPPURATION IN JOINT AND SPINAL DISEASE, AND ITS RELATION TO TUBERCULAR MENINGITIS—AN ANALYTICAL STUDY.

DR. J. E. MOORE said he thought it might be safely concluded that the formation of tubercular abscesses did not play a very important part in the development of tubercular meningitis. The evidence in the paper would also seem to point to the fact that operative measures were much less likely to cause tubercular meningitis or general tuberculosis than had been supposed.

DR. A. M. PHELPS said he did not think it was possible for true suppuration to produce a tubercular lesion.

DR. GOLDTHWAIT said that his cases of tubercular meningitis had given only the clinical evidence of this disease, but in every instance the autopsy had disclosed an acute general miliary tuberculosis.

HARRY M. SHERMAN, M.D., of San Francisco, read a paper on

A CLINICAL STUDY OF IODOFORM-GLYCERIN IN TUBERCULOUS OSTEOMYELITIS.

Fifteen of the twenty cases observed were cases of hip disease, two of knee-joint, two of ankle-joint disease, and one of disease of the elbow. In all, 164 injections were made. About half of those were intra-articular, and the other half were intraosseus injections of a ten per cent. solution of iodoform in glycerin. In no case was there any iodoform poisoning, or was the injection the cause of suppuration. The action of the injections was, in most instances, disappointing. In no case was the orthopedic treatment interrupted.

DR. ROSWELL PARK of Buffalo said that he had made an extensive trial of the intra-articular injections of iodoform, but had not seen much benefit from their use. In two cases, coming to excision, the iodoform was found packed into a mass, which acted as a foreign body. He had made some culture experiments with iodoform, and these had demonstrated that the germicidal power of iodoform was very feeble.

DR. J. E. MOORE said that he, too, had met with nothing but disappointment from the iodoform injections, except in the treatment of psoas abscesses. Here, he thought, they had been of some benefit.

DR. HENRY LING TAYLOR of New York said that although iodoform had proved disappointing when injected into diseased joints, he thought a solution of iodoform in ether was a valuable injection for sinuses.

DR. PARK said that as the germicidal action of iodoform was claimed to be due to the liberation of free iodin, he proposed to study the effects of injections of iodin and glycerin.

DR. JOHN RIDLON said that a sharp distinction should be made between cases treated by protective apparatus in conjunction with iodoform injections, and those in which only the injections were used. He had treated about thirty cases by the intra-articular injections. About one-third had showed improvement; another third had remained stationary, and the others appeared to have been made worse by the treatment.

DR. A. M. PHELPS of New York said that he had used the injections of iodoform with negative results. Iodoform and glycerin were useful in tubercular abscesses, partly because of the hygroscopic nature of the glycerin.

JEROME HILTON WATERMAN, M.D., of Buffalo, reported

FURTHER OBSERVATIONS ON THE USE OF HYDROCHLORIC ACID IN BONE NECROSIS OF TUBERCULAR ORIGIN, WITH REPORT OF CASES.

The injections of strong hydrochloric acid were usually made twice a week. His experience was, on the whole, favorable to the method.

DR. W. R. TOWNSEND said that he had observed good results from this treatment, particularly where the necrosis was superficial.

DR. A. E. HOADLEY of Chicago said that the application of a five per cent. solution of hydrochloric acid was sufficient to quickly decalcify the bone, without destroying other tissues.

DR. SHERMAN said that as the chief seat of disease was the granulation tissue in the bone, it would seem to him that the use of the sharp spoon would be more effective.

DR. WATERMAN, in closing, said that the treatment was at times quite slow. He would advise the use of a local anesthetic in conjunction with the acid applications.

WM. E. WIRT, M.D., of Cleveland, read a paper upon

THE USE OF DRY HEAT OF HIGH TEMPERATURE IN THE TREATMENT OF CHRONIC JOINT AFFECTIONS,

and described the apparatus which he employed. It consists of a copper drum, twelve inches long and nine inches in diameter, fitted at each end with a wooden ring and a hood of thick rubber. Having protected the back of the knee with cotton, it is enclosed in the apparatus and heat applied to the outside by means of a Bunsen burner. Most patients would tolerate a temperature between 250 and 300° F., provided three holes were made in the drum to secure proper ventilation, and so keep the air dry. This treatment gives an immediate relief to pain and increases temporarily the mobility of the joint.

BERNARD BARTOW, M.D., of Buffalo, described

DIVISION OF THE HAMSTRING TENDONS BY THE OPEN METHOD FOR CORRECTING MALPOSITION AND SECURING REST IN TUBERCULAR DISEASE OF THE KNEE.

He contended that division of the hamstrings gave quicker relief and secured better rest than did mechanical appliances, and that it cut short the inflammatory process. The operation should be done by open incision.

DR. WIRT thought it was rare that mechanical means would fail to straighten these cases.

DR. R. H. SAYRE said that the operation might be occasionally demanded, but, whenever possible, the straightening should be accomplished by mechanical treatment alone.

DR. B. E. MCKENZIE of Toronto said that he considered the method unjustifiable until after mechanical treatment had failed, and in his experience, mechanical means had never failed under such circumstances. The patients just exhibited should not be allowed to go around without better protection of the joint.

DR. JOHN RIDLON of Chicago was very positive that any joint still diseased could be straightened without operation. He was accustomed to use some form of a Thomas brace. In cases in which the greater part of the rigidity appeared to be due to fibrous adhesions and muscular shortening, without evidence of acute inflammation, he would straighten the limb by manual force, applied under anesthesia.

DR. W. E. WIRT, as an example of what could be accomplished by mechanical means alone, referred to a recent case, which had been pronounced by several surgeons to be one of bony ankylosis, yet he had succeeded, by mechanical measures alone, in straightening the limb in two months.

DR. BARTOW, in closing, said that to insure safety and thoroughness, the operation of dividing the hamstrings should be done through an open incision. In the cases that he had treated by the method described in the paper, he knew of no other alternative than excision; hence he considered the division of the hamstrings perfectly justifiable. The method was only intended as one means of accomplishing an end.

ROYAL WHITMAN, M.D., of New York, read a paper upon

A THEORY OF THE ULTIMATE ETIOLOGY OF DEFORMITY AND ITS PRACTICAL APPLICATION.

He said that in the process of evolution, the erect posture had been comparatively acquired, and that it was an attitude difficult of acquirement and difficult to maintain. The ordinary so-called postural deformities were then explained. The flexion and contraction deformity, he said, was of special interest to the orthopedic surgeon. If one accepted the morphological theory of its etiology, it would be evident that as the erect posture was a newly acquired attitude, so also the uses by the limbs proper to that posture were newly acquired. Complete extension of the limb in the support of this posture required not only the greatest expenditure of nervous energy, but also the greatest strain upon the joint surfaces; and when the ability to assume this attitude became impaired, the affected member became flexed—in other words, it involuntarily assumed an attitude common to the lower or quadripedal form of locomotion. Flexion was an evidence of unbalanced nervous influence and of preponderance of power of the lower or reflex centers. In joint disease the cause was local irritation and consequent muscular spasm; in the second, the inhibitory influence of the higher center was impaired or removed. The erect posture was an evidence of the higher position of man in the scale of evolution. When the controlling force of the higher center was directly or indirectly

impaired, the more difficult and newly acquired attitudes were disused, and the affected part fell backward toward the type from which it had been differentiated.

HARRY M. SHERMAN, M.D., of San Francisco, read a paper entitled

FURTHER OBSERVATIONS ON THE CAUSE OF THE LIMP OF HIP-JOINT DISEASE.

He said that tuberculous bone disease resulted in a wasting of the osseous trabeculæ and the development of an area of structural weakness, usually in the neck of the femur. In hip disease the effort is made to bring the center of gravity of the body as nearly as possible over the head of the femur, so as to relieve the strain upon the structurally weak spot. This theory assumes that there is a "bone sense," comparable to the muscle sense. The speaker then went on to describe by the aid of blackboard diagrams his mechanical theory of the causation of the limp of hip-joint disease. He endeavored to show that the keynote to the subject, from a mechanical point of view, was the fact that the head and neck of the femur constitute a column and bracket, or what is known in mechanics as a "cantilever," and that these anatomical members were, therefore, governed by the same mechanical laws as control the operation of the "cantilever."

DR. WIRT said that he believed the author was in the main correct in his theory, but he would remind him that when running, the femur supports the weight of the body, plus the momentum.

DR. A. M. PHELPS said that he was of the opinion that the capsule of the joint was swollen with tuberculous material, and that as a result, in order to relieve intra-articular tension the patient pulled the limb into a partially flexed position.

DR. BRADFORD said that in some cases the lack of free motion in the joint would account for part of the limp. In cases of cured hip disease, with the limb much adducted, the limp was often due to the effort of the patient to balance himself.

THE PRESIDENT said that the weak point in the author's argument was the assumption of voluntary adaptation of the limb. If this were voluntary, one would certainly not expect it to occur in very early infancy, and yet it was known that the limb assumed such a position in these patients.

DR. WEIGEL said that he would like an explanation of the fact that in the early stage there would be a limp, even though there had been no swelling of the joint. Again, Dr. Judson had shown that patients who had recovered from hip disease, and who still limped, could be trained until the limp was scarcely noticeable.

DR. SHERMAN said that in running the footprints were very nearly in a straight line, thus bringing the point of support nearer to the center. This was not a voluntary, but a reflex act. He believed it was rare for hip joint disease to begin in the capsule. The recovered cases which walk without limp are those in which there is ankylosis between the bones.

A. R. SHANDS, M.D., of Washington, D. C., read a paper on

FEMORAL OSTEOTOMY FOR CORRECTION OF HIP DEFORMITY IN ADULTS, WITH A REPORT OF CASES.

He advocated Gaunt's intra-trochanteric osteotomy. He preferred to do this operation with Gaunt's osteotome having a blade only three-fourths of an inch wide. The only dressing was sterilized gauze retained by adhesive plaster, and a plaster-of-Paris spica applied after a proper position of the limb had been secured.

DR. PHELPS said that he would advise, in a case of double hip-joint disease with ankylosis, the performance of excision, being careful to remove enough bone to prevent ankylosis. He had recently adopted a novel method of securing motion at the joint, viz: cutting through just above the lesser trochanter; bringing down the limb by force; cutting off about three-fourths of an inch of the femur, and then inserting a piece of fascia between the ends of the bones.

DR. SHERMAN said that he would limit this subtrochanteric osteotomy to cases in which there was no motion between the femur and pelvis.

DR. W. R. TOWNSEND referred to several adult cases, coming under his observation, where an excellent result had been obtained by operation for bony ankylosis.

DR. GOLDTHWAIT also cited several adult cases, and remarked that the limb had been put up with ten or fifteen degrees of flexion so as to make it more comfortable for the patient when sitting down.

DR. J. E. MOORE said that while the result was not so likely to be good in cases where there was some motion, he would not confine operation entirely to those cases in which there was complete bony ankylosis.

ARTHUR J. GILLETTE, M.D., of St. Paul, read

A REPORT OF CASES OF OSTEO-SARCOMA OF THE HIP.

He reported three cases illustrating the difficulties in differential diagnosis where there was osteo-sarcoma of the hip. Deformity might not occur for months after the onset of the disease, and there would be in all probability no fixation, very little atrophy, and little or no shortening.

DRS. R. H. SAYRE, SHERMAN, and MOORE, also reported similar cases.

JAMES E. MOORE, M.D., of Minneapolis, read a paper on

TUBERCULOSIS OF THE WRIST AND CARPUS.

He said that wrist-joint disease comprised about five per cent. of all tubercular joint diseases, and occurred most commonly in persons between fifty and sixty years of age. The disease was insiduous in its development, but the diagnosis could be easily made by the swelling, atrophy, flexion, and the peculiar position of the thumbs and fingers. The tendon sheaths were often involved. Children often recover from the joint affection, but rarely live to maturity; in adults it almost invariably ends in phthisis. For children, enforced rest of the joint, by means of plaster-of-Paris dressings, is of service, but for adults it is only applicable to recent cases, and should then be combined with injections of iodoform emulsion. Where there were sinuses and evidence of suppuration, the choice lay between complete excision and amputation. Amputation

was often the most conservative treatment. The author did not favor early excision, because the functional results were bad, and as a life-saving measure it could not compare favorably with amputation. When the disease was well marked and progressing rapidly, when there was well-marked wrist-joint disease with incipient phthisis, and when with the wrist-joint disease there was advanced pulmonary tuberculosis, he would recommend amputation.

Dr. McKenzie said that he had had some very good results in this class of cases from the use of injections of iodoform and glycerin. He had not observed severe reaction following this treatment—indeed, in some instances, the existing pyrexia had been observed to diminish after the injections.

Dr. Sherman commended amputation as the best treatment in cases of severe disease of the wrist.

Dr. Gillette said that some of those who had spoken had implied that these patients suffered much pain. His own impression had always been that wrist-joint disease was associated with very little pain.

Dr. Moore, in closing, said that occasionally pain was prominent. In one case he had done an amputation because of the intense pain, and the result, both as regards prolongation of life and increased comfort, had justified the amputation.

Henry Ling Taylor, M.D., of New York, read a paper on

THE MECHANICAL TREATMENT OF INGROWN TOE-NAIL.

He recommended the following method, modified from that devised by Mr. Masters of England. A flat strip of silver, one-hundreth of an inch thick, and one-eighth of an inch wide, and one inch long, is bent into the shape of a fish-hook. The toe having been cleansed with peroxid of hydrogen, and moistened with a solution of cocain, the hook is inserted under the lateral edge of the nail so that the shank of the hook curves over the side of the toe, and lies close to it. The greater the ulceration, the less the pain in inserting the hook. It is retained in place by adhesive plaster or a bandage. The hook not only protects the flesh from the nail, but it exerts a lifting action on the nail. After a few hours the patient suffers no inconvenience from the hook, and in a few days the swelling subsides, and the granulations become more healthy. It is well to wear the hook for several weeks after the tissues have healed, in order that they may become sufficiently hardened. The method, the speaker said, was applicable to the severest cases.

Third Day, May 21st.

J. C. Schapps, M.D., of Brooklyn, described a

MECHANICAL SUPPORT FOR FLATFOOT.

On hammering out by hand a steel sole to conform to the arch of a well-developed adult foot, it would be observed that the anterior and posterior halves were nearly alike. Having modified the sole-plate so as to make these the same, it was found that the shape resembled that of a portion of the convex surface of a cone, with the apex directed toward the outer side of the sole and the base toward the inner side of the foot. From this plate, plaster casts were made, and these casts served as models from which iron dies were manufactured. With such dies any mechanic could make steel plates, from which soles were easily cut for right or left feet, high or low, large or small feet. A contour of the patient's foot taken on cardboard, was trimmed to fit the sole of the shoe in front, outer side and back, and made wide enough to allow of it coming well up on the inner side of the foot at the arch. This pattern was used to correct the rough outline of the foot taken on the plate itself. The curved line representing the inner edge of the arch of the plate should be located just below the scaphoid and the head of the astragalus. The inner flange of the plate requires careful shaping—it should be nearly vertical as the patient stands on the plate. Having fitted the plate to the foot and to the shoe, it should be covered with vulcanized rubber.

Dr. Schapps also described

SOME APPARATUS FOR THE TREATMENT OF POTT'S DISEASE.

He presented a wheel-cot which he had found useful for the purpose of maintaining uninterrupted recumbency with regulated pressure in Pott's disease. Traction could also be applied. He said that the energy required to hold the spine rigid and the lower limbs in a continuous state of elastic tension to break the shock to the spinal column, exhausted the general and local recuperative forces. It was injurious, in his opinion, to interfere with the respiratory movements of the chest and abdomen. The sternum should be used as a base from which to make forward pressure on a dorsal kyphos. It was also apparent that both the posterior or spinal, and the anterior, or sternal supports of the upper mass should be kept under it, and lateral pressure on the chest avoided. For the treatment of Pott's disease in the upright position, the author used a combination of the Taylor brace posteriorly, and anteriorly a rigid, light support, which made pressure only on the parts which could convey it to the spine without interfering at the same time with respiration.

Le Roy W. Hubbard, M.D., of New York, discussed

THE TREATMENT OF POTT'S PARAPLEGIA.

He reported two cases, and asked if it were possible to reduce the period of paralysis. After reviewing the history of the treatment of this very common complication, and reading replies received from a circular letter that he had sent to the members of the Association, he concluded that if immediate efficient mechanical support were applied to the spine, absolute recumbency enforced until power returned, and a general tonic plan of treatment were carried out, there would be a complete cure in almost every instance, and in the majority, in a short time. Operative treatment was very rarely called for.

Dr. Ketch said that his experience did not show a natural tendency toward recovery in cases in which the paraplegia affected the arms.

Dr. Weigel said that it had been his lot to deal more especially with adult cases, in whom the prognosis was relatively less favorable. He did not think any one could

give even an approximate idea regarding the average duration of Pott's paraplegia.

DR. RIDLON said that his experience had been that the cases in which the sphincters were involved gave the worst prognosis. In one case in which the arms had been affected, recovery had been quite rapid.

A. M. PHELPS, M.D., of New York, described

THE TREATMENT OF CLUBFOOT.

Manipulation and retentive dressings should be begun at the earliest possible moment, and when, after a reasonable time, the progress by this method became very slight, all parts offering resistance to reduction of the deformity should be cut, and the limb put up in a super-corrected position. Out of 343 operations, he had had only five per cent. of relapses, and in the last series—182 cases—there had been no mortality.

REVIEWS.

ELECTRICITY IN ELECTRO-THERAPEUTICS. By EDWIN J. HOUSTON, Ph.D., and A. E. KENNELLY, Sc.D. New York: The W. J. Johnston Co., publishers; 1896.

THIS little book of four hundred pages is one of a series of similar works upon the subject of electricity. The other books of the series are written for the general public, but this one is directed more especially to the medical profession. The work is elementary in its nature, but the subject is made clear, and the book is well illustrated.

DIET FOR INFANTS AND CHILDREN IN HEALTH AND IN DISEASE. By LOUIS STARR, M.D. Philadelphia: W. B. Saunders, publishers.

THIS is a bound volume of prescription blanks for diet. The object of the book is not only to induce more definite principles of diet in the management of sick and healthy children, but also to make it convenient for the physician to practically apply these ideas. The blanks themselves are full of suggestion, and they are bound in form convenient for the physican. The leaves are perforated so that they are easily torn out as prescription blanks to be left with the nurse.

A B C CHEMIST'S VEST-POCKET DIARY FOR 1896. London: Burroughs, Wellcome & Co., publishers.

THIS little book is an embodiment of what its name implies. It contains a variety of pharmaceutical technical information, valuable not only to the pharmacist, but also to the physician.

THE NURSING WORLD BEDSIDE RECORD. For the use of physicians and trained nurses. New York: John Carle & Sons, publishers.

THIS Bedside Record is the outgrowth of a prize competition among readers of the *Nursing World*. It embodies the essential elements of a large number of designs. It is arranged in an attractive manner and printed in colored type, so that the main features of the record will readily catch the eye.

THE NEWER REMEDIES. By VIRGIL COBLENTZ, A.M. Second edition. New York: D. O. Haynes & Co., publishers.

THIS is a convenient inexpensive reference manual for physicians, pharmacists, and students. The constantly increasing number and complexities of new remedies with the scattered condition of the literature upon the subject, render it desirable that the physician should have the facts regarding them in a convenient form. This little book will furnish the latest and most reliable facts regarding these remedies.

HOW TO FEED CHILDREN. A manual for mothers, nurses, and physician. By LOUISE E. HOGAN. 1896. Small octavo, pp. 236. Philadelphia: J. B. Lippincott Co., publishers.

THIS book offers in a practical form, suggestions regarding the application of the principles of dietetics to feeding in the nursery and throughout the period of childhood. The book is practical and attractive, and if free from the error of inculcating over-confidence in the parent or nurse regarding the management of the individual case. The book is full of valuable hints and suggestions that may be of service to any practitioner in the presence of ill-nourished and improperly fed children when presented to him for advice.

FORMULAIRE DES MEDICATIONS NOUVELLES. Par Le DR. H. GILLET. Paris: Bailliere et Fils, publishers.

THERE are to be found in this new Formulary all the recent acquisitions of any value to modern therapeusis. The author has endeavored to discriminate, however, between those that have been established after thorough trial and those which are still in the experimental stage. To those familiar with the French language, the book will be found full of valuable suggestions.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 14, 1896, TO JULY 20, 1896.

The leave of absence on account of disability granted to Major Clarence Ewen, surgeon, is extended one month on account of disability.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 21, 1896, TO JULY 27, 1896.

Captain George E. Bushnell, assistant surgeon, is relieved from duty at Fort Hamilton, N. Y., to take effect upon the expiration of his present leave of absence, and ordered to Fort Assinniboine, Mont., for duty at that station, relieving Captain Peter R. Eagan, assistant surgeon. Captain Eagan, upon being thus relieved, is ordered to Fort Hamilton, N. Y.

Leave of absence for three months, on surgeon's certificate of disability, is granted First Lieutenant Isaac P. Ware, assistant surgeon, Madison Barracks, N. Y.

Leave of absence for one month is hereby granted Captain Paul Clendenin, assistant surgeon, Fort Warren, Mass.

The extension of leave of absence granted Captain George E. Bushnell, assistant surgeon, is further extended one month.

Leave of absence for three months, to take effect on or about August 3, 1896, is granted Captain Edgar A. Mearns, assistant surgeon, Fort Myer, Va.

THE MEDICAL NEWS.
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ORIGINAL ARTICLES.

EARLY DIAGNOSIS OF MALIGNANT DISEASE OF THE UTERUS.

BY WALTER B. CHASE, M.D.,
OF BROOKLYN, N. Y.;
GYNECOLOGIST TO BUSHWICK HOSPITAL.

THERE are no more melancholy pages in the annals of human suffering than those which relate to the ravages of malignant disease of the uterus. To the gynecologist, the power of early diagnosis is as essential to the highest success in its management, as a sensitive conscience is to the moralist or the compass to the mariner. No matter how broad the culture, how consummate the skill, how exact the technic, or how perfect the mastery of the subject in other particulars, a lack of corresponding acquirement in ability to make the earliest possible diagnosis, may be fatal to the safety of the patient.

Notwithstanding the rapid advance in surgical pathology, and the aid clinical observation confers, the most expert diagnostician is painfully conscious of the limitation of his knowledge in the early stages of this fatal disease, and the meager data upon which he must formulate his deductions. While the evils which attend this very limitation of knowledge are a great embarrassment to the diagnostician, they bear with far greater severity on the unfortunate woman whose safety may hang on his ability to make an early and correct diagnosis. This power of early diagnosis as to benignancy or malignancy in uterine disease, is the ability to make plain the dim inscription on the signboard at the divergence of the two ways, one leading to hope, the other pointing to despair. Every dictate of reason, every consideration of safety, and every philanthropic impulse, demands the most careful scrutiny of every condition and detail which will aid in reaching correct conclusions. Nowhere in the domain of surgical procedure is avoidable delay more to be deprecated, and nowhere are the consequences more cruelly relentless. The diagnosis must rest on the information which pathology and clinical experience offers, and their combined wisdom must be invoked to yield the most trustworthy evidence.

Various answers have been given to the interrogatory, What is cancer? A simple and rational answer is found in the statement that it consists of the presence of cells out of time and place. It is the presence and growth of epithelial cells, having within themselves an inherent tendency to rapid reproduction with abnormally low powers of resistance. The etiology of malignant disease is a matter of great interest, but the scope and purpose of this paper is so modified by necessary limitation, that this, with certain other aspects of the case, can be but briefly referred to. This limitation, to a large degree, applies to the minute histological study of cancer. Formerly it was held that the local manifestation of malignant disease was the secondary manifestation of a general systemic condition, but the development of cellular pathology has swept away any such hypothesis. The cells of cancer are heterogeneous to the particular structures in which they are found. The theory that they are congenital, finds able supporters, while others hold that various accidental causes are responsible for their presence, which includes inflammatory and degenerative changes. Different authors and writers have adopted various classifications of malignant disease, but one based on the pathological condition, rather than the clinical varieties, commends itself both for simplicity and accuracy. Such a natural classification of uterine cancer is found in the three pathological varieties, viz: adenoma, sarcoma, and carcinoma.

In point of manifestation, carcinoma—the epithelial type—is most frequent and most malignant; next in order of frequency is adenoma (not always malignant), the glandular type. Sarcoma ranks next, and while rare, possesses a high grade of malignancy.

The etiology of cancer, though a problem of importance, has not been authoritatively settled. Among the causative and predisposing factors, may be mentioned age, heredity, frequent gestation, and degenerative and hyperplastic changes. Skene, after analyzing many thousand cases, found an inherited taint in thirteen per cent. Comparative views of different writers give authority to the belief, that in quite a percentage of cases the line of progenitors for one or two generations had been, to a certain extent, victims of malignant disease. Evidently the relation be-

tween the number of children born and the frequency of uterine cancer is more than accidental. Traumatism as an etiological factor has not, I am fully assured, been accorded its proper place as an exciting cause. As substantiating this view, I have, after many years' observation, met with only a single case of cancer of the cervix in a woman who had not borne children, or who had at least not been pregnant; while cancer of the cervix and corpus has been of frequent occurrence in child-bearing women. Clinical experience gives ample proof that a close relation exists between laceration of the cervix and cancer of the cervix. Every woman who is known to have an unrepaired cervical laceration should either have the laceration repaired or be kept under regular observation until a period some years subsequent to the menopause, as a wise and reasonable precaution. The remarks of Goodell that "cancer of the body of the womb is a disease more of old maids and sterile wives, and that on the other hand, cancer of the cervix is almost always found in women who have borne children," is not without significance.

The rôle which syphilis, in its more remote effects, plays in the production of malignant disease, is as yet undetermined, but there is reason to believe it is not in certain cases without influence. The relation which undue, frequently repeated, and long continued irritation of uterine structure may bear to uterine cancer, is difficult of determination, but that it may be an important factor seems more than probable. The frequent development of epithelioma on the lips of smokers, and sarcoma resulting from contusions, lends plausibility to the theory.

Malignant disease of the cervix presents itself under two distinct varieties: one squamous-celled epithelioma (carcinoma) springing from the vaginal surface, and columnar-celled arising from the cervical glands or the cervical epithelium. The first variety show a tendency to outgrowing vegetations, involving the vaginal wall, rather than the connective tissue or substance of the cervix; while the second variety develops in the deeper structures of the cervix as a small nodule, and has a tendency to invade the corpus, and later the broad ligament. Being concealed from view, it covertly accomplishes its destructive course, and is liable to elude observation until its ravages are wholly beyond control.

Sarcoma of the corpus is rare, and that of the cervix still more infrequent. Great rapidity of growth and great malignancy are the common characteristics of sarcoma uteri. The rapidity of the development of sarcoma is sometimes a mark of malignancy almost pathognomonic. A case which strikingly illustrated this feature of sarcoma recently came under my observation in a young woman, twenty-four years of age, which ran a fatal course in a little less than four months. It was of the diffused type, preceded for some period of time by symptoms of menorrhagia, developing itself in the broad ligament, simulating pelvic peritonitis, which made diagnosis impossible until the period was reached when it became inoperable; and then with galloping speed involved the entire corpus and left ovary.

In development carcinoma falls short of any definite glandular formation, while adenoma is distinctively such. As to frequency of malignant disease of the cervix, that of the columnar-celled type predominates over the epithelial, while in the corpus, adenoma is the rule. In carcinoma of the corpus the point of development arises in the glands as papillary proliferations into the cavity or into the uterine wall. Virchow describes three varieties of sarcoma, the round-celled, the spindle-celled, and myxo-sarcoma. They are regarded as equally malignant, equally infectious, and in the main their symptoms are identical, or at least similar. Sänger describes another variety known as *sarcoma deciduo-cellulare*, arising from decidual remains succeeding pregnancy, as the protoplasmic bodies closely resemble decidual formations.

Thornton, in a recent article in the *Lancet*, justly emphasizes the fact that any menstrual departure from the normal, no matter how trivial, is sufficient ground on which to insist on a thorough local examination. The causes which lead to excessive menstruation and uterine hemorrhage are so numerous and diversified that no effort will be made to differentiate them, except in so far as they relate to malignancy, and here only partially. Any escape of blood from the vagina at a period subsequent to the menopause, is a matter of deep significance, and, except in rare cases, is the concomitant of malignant disease. Any failure to accord it full significance and searching scrutiny, is, on the part of the general practitioner or gynecologist, not only culpable but little less than criminal. I have personally met with but few cases in which this symptom did not portend malignancy. The question whether menstrual excess or intramenstrual hemorrhage is due to systemic or local disease is of vital and far-reaching significance; and if local, whether the disease is malignant or suspicion points in that direction. The unfortunate fact connected with so many

cases of uterine cancer is that they come under observation so late as to be inoperable.

It is to be noticed that carcinoma of the cervix is more frequently found among the poorer classes, and is relatively a disease of mature life, most often found between thirty and sixty years. It was formerly believed that carcinoma of the corpus was extraordinarily infrequent, but improved methods of diagnosis and further observation disproves the assertion. The hemorrhage in cervical cancer may at first, in young women, retain the menstrual type and later on become irregular, while, after the menopause, it is atypical. In the very early stage of ulceration there may be entire absence of the putrefactive stench which is so often a characteristic feature. Such a case has just come under my observation, in a young and typical epithelioma of the cervix, in a woman sixty-three years of age. The duration of the disease varies greatly. Its progress may be slow or rapid. It has been known to terminate fatally in a few weeks after its perceptible beginning, or the patient may linger for a period of four or five years, the average being less than two years. It is a singular fact that women with carcinoma are found somewhat frequently to have increased sexual desire. The slight bleeding, incident to digital examination, should excite suspicion, and the cause determined, whether due to some form of erosion so frequently present on the cervix, whether the result of laceration and eversion so common in women who have borne children, or to graver causes. If the cervix is the seat of malignant disease, sight and touch will greatly aid in differentiation. In the early stage there is usually increase, perhaps slight, but appreciable, of the new structure with a tendency to invade contiguous tissue. The first change observable is enlargement and hardness of red nodules, which bleed easily and break down on touch as the disease progresses, the tendency to disintegration increases, and is attended with sero-purulent discharge and blood. The hard rim of the excavation, the crater-like depression, its tendency to bleed, are the unmistakable evidences of cancer. If these appearances are not already present in a degree sufficient to warrant an opinion, the case should be carefully watched, and gentle treatment applied to see whether the diseased surfaces heal. If of benign origin, the erosion or ulcer is likely to heal; if malignant, healing will not follow. The form of erosion in cancer of the cervix differs from follicular erosion, the edges being indurated and elevated. The papillary projections in cancer break down when scraped with the finger-nail much more readily than the benign variety. Another distinction to be made between cancer and cervical endometritis, in its clinical history, is that in cancer the discharge has lost its mucous consistency, as mentioned by Boldt. When the disease originates in the cervical mucosa, or in the deeper cervical structures, the symmetrical or asymmetrical condition of the portio vaginalis should be closely observed. In the squamous-celled variety of cervical carcinoma the posterior lip is the point most frequently attacked.

Dr. John Byrne, whose large observation and experience in the treatment of uterine cancer, and whose opinion is entitled to great weight, says: "Regarding physical examination alone, without allusion to history, the existence or absence of hemorrhage, pain, etc. (the latter which has no special significance), that in women long past the menopause the portio will be found smaller, less projecting, and presenting a somewhat shriveled appearance, particularly around the os; whereas, in earlier life, say from thirty to forty, I have usually observed the portio longer than normal, *but symmetrically so.* When the diseased structures of the cervix are invaded, whether primarily or by extension, the change in form will rarely be found symmetrical, but one or the other lip enlarged and indurated and probably abraded."

If, as is sometimes true in the doubtful cases, the most careful clinical study is insufficient to determine the nature of the disease, diagnosis may be arrived at by detaching a small portion of the structure for microscopical examination. When this step is ventured on, before the ulcerative process has appeared, every preparation should be made for prompt operation if admissible, as soon as the histological study is completed, for such exposure adds vastly to the risk of more rapid spread of the disease. If the disease attacks the corpus, its usual initial point is on the free surface of the endometrium, in which event the cervix may be dilated, and the finger introduced for purposes of exploration. By this method areas of inflammatory enlargement, hypertrophy, and ulceration may be accurately located, and, in certain cases, serve as guides to curettage. Sometimes an examination of the *debris* spontaneously discharged or removed by the curette, may contain sufficient tissue on which to predicate the nature of the malady, and it is here that the skill of the pathologist finds a most attractive field for investigation. The causes for uterine hemorrhage are so frequently associated with inflammatory and degenerative changes of the endometrium, oftentimes benign, that the findings of

curettage are often of the highest value, not only for diagnostic purposes but for the selection of curative measures. If the disease has not progressed to a well-marked ulcerative stage and the menorrhagia occurs, positive evidence of malignancy, independent of other distinctive symptoms, may not be present until a second or third curettage. If the histological examination warrants the conclusion of malignancy the indications are plain. If otherwise, and hemorrhage continues, the employment of radical measures without positive proof of malignancy may be justified. There seems to be a growing consensus of opinion that menorrhagia of considerable duration not relieved by thorough curetting thrice repeated, possesses the essentials of malignancy and should be treated accordingly.

There is a form of adenoma uteri,[1] very little mentioned in literature, concerning which I have been able to find nothing in any English or American text-book or medical journal. I am indebted to the courtesy of my friend, Dr. J. M. Van Cott, Jr., Pathologist to the Brooklyn Gynecological Society, for the following brief résumé of the subject:[2] "It is a lesion of the corporeal portion of the endometrium, which consists of a chronic persistent hyperplasia of the endometrium, with adenomatous degeneration and progressive growth of the endometrium between the muscular bundles of the metrium proper. This produces a globular enlargement of the corpus uteri with atrophy of the muscular tissues and recurrent hemorrhage, which is severe and does not yield to curettage or any other form of treatment short of hysterectomy. It may occur at any period after the age of puberty; but is, perhaps, most common after the menopause. The diagnosis of this lesion is often surrounded with great difficulty, and can only be established by means of conjoined microscopic examination of accurately cut and prepared sections, in collodion or paraffin, and the clinical history of the case extending over a period covering several hemorrhages, recurring after thorough curettage. The diagnosis of this disease being positively assured, hysterectomy alone can afford permanent relief."

Skene teaches that there is a tendency in cases of benign adenoma of the endometrium, following curettage in from six months to two years, to be succeeded by epithelioma, and suggests the propriety of hysterectomy according to the pathological findings. Martin mentions the occurrence of the same procession of symptoms, and recommends that where a single curettage is not attended by cure, hysterectomy should be done. Conditions analogous to these are not infrequently met with by one having much to do with the diseases of women. They are entitled to the most considerate and discriminating investigation, as the personal safety and future welfare of the patient depends on the skill and courage of the one to whom is entrusted such sacred prerogatives. This conclusion involves a discrimination from uterine hemorrhage due to benign neoplasms, such as submucous fibromata, myomata, or polypus, or of benign degeneration of the uterine mucosa, and the state of chronic ovaritis and some forms of metritis. An unusual form of inversion of the uterus, associated with great hyperplasia of its walls, in fleshy women with very thick and fat abdominal parietes, in which the tumor fills the pelvis as completely as the head of a child in a second stage of labor when associated with violent hemorrhage and profuse watery discharge and a thickened and abraded surface, is not, on first observation, so easy of determination. The presence or absence of offensive odor of the vaginal discharge in suspected cancer is a symptom of great significance. An ichorous, foul-smelling discharge, more or less mingled with blood, is, with some exceptions hereafter noted, almost pathognomonic of cancer. If associated with these symptoms there are those of pain and cachexia, the diagnosis is practically established. It should, however, be remembered that anemia, as expressed by pallor, is not cachexia, and is a usual concomitant of exsanguination in conditions where there is absence of malignancy. On the other hand, absence of pain as a single symptom by no means excludes cancer, for malignant disease may be far advanced, and yet painless. Exceptions are found in cases of long retained and decomposing placenta following miscarriage or premature labor, ulcerations found at seat of such placental implantation, and in some forms of neglected syphilitic ulceration. Another condition I have seen mistaken for cancer of the corpus in women ten or fifteen years beyond the menopause, associated with purulent and highly offensive discharges and great pallor, is that of small, sloughing submucous intrauterine fibroids, in which prompt recovery succeeded their removal. Diagnosis under such conditions would be facilitated and probably assured by careful microscopic examination of the discharges.

Doubtless these fibroids were present before the menopause, and had diminished in size *para passu* with the uterus while it was undergoing connec-

[1] "General Pathology and Therapeutics," Schwalbe.
[2] *Brooklyn Med. Jour.*, June, 1896.

tive tissue metamorphosis, by which the blood-supply was cut off and disintegration followed. There is a form of erosion and ulceration due to pressure of pessaries and the attrition incident to procidentia and purulent discharges of venereal origin, which must be distinguished from cancer. There are some points in the clinical history of cancer not alluded to, which should not be lost sight of. Perhaps the most important is the method of growth and dissemination of the cancer-cell. The spread of carcinoma and adenoma is through the lymphatics, that of sarcoma by contiguity of tissue and blood-currents. For this reason enlargement of the lymphatic glands would not obtain in the clinical history of sarcoma. Fixation of the uterus as an incident of cancer is worthy of careful study. Unless a clear history of the case from some authoritative source excludes previous pelvic inflammation, there may arise a nice point of distinction, whether the fixation is due to former adhesion or to extension of malignant infiltration. Careful study of the point of maximum fixation and its proximity to the seat of the disease, aided by thorough bimanual palpation, or the admirable method of diagnostic palpation so graphically described by Edebohls, will usually dissipate the doubt. Again, cancer is not to be confounded with constitutional impairment and offensive vaginal discharge found in fistulous openings into the vagina or uterus.

In malignant disease of the corpus not involving the cavity, early differentiation is a matter of great difficulty. Fortunately, however, it is a matter of infrequent occurrence. Absence of uterine discharge would not exclude its presence, as is true in the case of diffused sarcoma of the body. The presence of cachexia in suspected cases is a symptom of such recognized value as to require no comment. Conditions may exist in these or analogous cases where exploratory section, either vaginal or abdominal, is not only justifiable, but necessary, for diagnostic purposes, as in suspected cancer of the corpus and in fixation due to supposed previous adhesion.

In all that has been said of the varieties of uterine cancer, it should be remarked that the symptoms are essentially a unit, and do not vitally differ in the various varieties. Failure to find conclusive evidence in a given specimen of suspected structure would not alone be sufficient to exclude the diagnosis of cancer. Again, it should be borne in mind that the histological study of different mountings of the same specimen by two equally expert pathologists, in which the findings differed radically, one showing malignancy and the other absence of it, would not disprove a diagnosis of malignancy. In other words, negative testimony, set over against positive proof, is without weight, and valueless.

Finally, the intrinsic value, for diagnostic purposes, of the information derived from expert microscopical examination of diseased structure is equal to that of every other consideration mentioned, providing, however, the conditions are favorable for such investigation. Both time and space forbid entering on the differential diagnosis of these growths from the histological standpoint. Suffice it to say, however, that the evidence it presents is authoritative and final.

ON THE TREATMENT OF BIRTHMARKS.

By ELLICE M. ALGER, M.D.,
of New York;
Instructor in Dermatology in the New York Polyclinic; Attending Physician Demilt Dispensary.

The comparative frequency with which one sees upon the street or in private practice most distressing cases of birthmarks, must have been noticed by every observant physician.

And the fact that beautiful girls are allowed to pass through life with a crimson stain upon the forehead, or a yellow mark upon the cheek, would argue that many family physicians are entirely unaware of the ease with which many of these hideous disfigurements can be obliterated. They are, as a rule, present at birth, though they may not be noticed till some time after, and are generally ascribed by the laity to some previous impression made upon the mind of the mother. This theory has been much ridiculed, but the frequency with which cases, apparently substantiating it, are met with should make us cautious in our disbelief. Almost every person has a birthmark of some kind somewhere.

One of the commonest types is that called the nevus araneus, or spider nevus, from its resemblance to the small red garden spider.

It consists of a central dilated capillary, with a few little radiating capillaries, and occurs chiefly on the head and face, a favorite location being at the junction of the nose and inner canthus of the eye. Another anomaly of circulation gives the port-wine nevus (nevus flammus), which may occur upon any part of the body, but is especially frequent about the head and neck. They may be of the size of a dime, or may cover half the face, of any shape, flat or raised, rough or smooth. In color they vary from a bright red to a steel blue, depending in part on the condition of the blood, whether arterial or venous, but more on the depth of the vessels beneath the skin.

They may appear at birth, or may not be noticed for months; they may remain stationary in size or may possibly disappear spontaneously, while in a certain proportion of cases they steadily increase. All are marked by a tendency to blanch on pressure. In this form there is a simple increase in the size and number of the capillaries. Very different is the structure of the angiomatous nevi, in which there is an increase of connective tissue, while the blood is poured directly from the arterioles into the enlarged veins and sinuses without the intervention of capillaries. The whole structure being somewhat analogous to the corpus cavernosum, becoming erectile when irritated, and at times bleeding very easily. These are especially prone to occur about the mucous orifices, especially the mouth and vagina, and are by all means the most difficult to treat successfully. Entirely different in character and structure, but hardly less disfiguring, are the pigmented birthmarks. The simplest of these consists of a simple increase in the coloring matter of the skin, and is not raised above the surface, appearing as a brown mark, technically known as nevus spilus. Generally there is associated with this a decided hypertrophy of the connective tissue elements, causing a raised brown mark, generally small. The color varies from lemon to almost black; the surface may be smooth, or it may be rough enough to resemble a wart. The glandular and pilary elements in the skin may be atrophied or there may be a luxuriant growth of hair, darker in color than that of the rest of the body. This last form is generally called nevus pilosus, while if it contains an excessive amount of fatty matter it is called nevus lipomatodes. These pigment moles are much more likely to be multiple than the vascular ones. There are, of course, other varieties of moles, which are at times congenital, but those described affect most patients' peace of mind, by reason of the disfigurement they cause.

They have been treated by caustics and acids, by the actual cautery, by pressure, by ligature, and by vaccination. The nevus araneus is very easily destroyed. A needle may be dipped in carbolic acid and plunged into the central capillary, thus destroying the whole mark in a very few seconds. A very hot needle is equally effective, but these methods of procedure are objectionable where larger growths are concerned. They require great fortitude on the part of the patient, or the use of an anesthetic, and they give considerable pain afterward, while the destruction of tissue cannot be very well controlled. This is a very serious drawback, for we depend for our result upon the substitution of a scar for the mark, and the lighter and thinner the scar, the better the cosmetic effect. For these reasons, the methods outlined above should never be employed about the uncovered parts of the body. The use of freshly prepared ethylate of sodium has been very highly recommended in vascular nevi that are not too large and deeply situated. It is rather painful, but after one or two applications, a thin crust forms which falls off in a few days, leaving a fairly thin scar. But unless the solution is freshly and carefully prepared, it is in effect an aqueous solution of caustic soda.

All things considered, the use of electrolysis is by far the most satisfactory means of treatment, but in order to secure good results it is necessary to have a good idea of the physical and chemical properties of the current. The appliances necessary consist of a galvanic battery of at least ten cells, or some means of regulating the street current, conducting cords, sponge electrodes, needle-holder, needles, etc. A milliamperemeter is not necessary, but it is an assistance to good work. The cells should be connected zinc to carbon. The needle-holder is better without the spring for breaking the current which is so generally provided, the needle may be varied in size according to the character of the work, from that of the very finest jeweler's needles to the broad flat surgical ones.

The sponge or punk electrode, attached to the positive pole, thoroughly moistened with saline solution, can be continuously applied to the skin, regulating the current through a rheostat, but the best way is to have the patient hold the sponge and complete the circuit by pressing it against some convenient part of his body. It is less painful to break the current at the positive pole, and the patient is able to regulate the current in part by increasing or decreasing the pressure. The needle attached to the negative pole should be introduced at the margin of the growth, either perpendicularly to the surface of the skin, or in a slanting direction, according to the size and depth of the nevus, and a current of from one to three milliamperes used according to the patient's fortitude. There is at once evolved at the negative pole about the needle, hydrogen gas, which can be seen bubbling up, and a caustic alkali, which destroys a certain amount of tissue in proportion to the strength of the current and the depth to which the needle has penetrated. No arbitrary rule can, therefore, be laid down as to the time, which is dictated entirely by experience. If it is left too long, too deep a scar results; if not

long enough, no appreciable effect is produced. The proximity of the insertions must be governed by the effect desired, which is to combine the white of the scar-tissue with the red of the nevus, so as to produce a general effect as much like the rest of the skin as possible. The punctures should not be closer together than a sixteenth of an inch. If the mark is large, work can be facilitated by using a group of needles.

In the large angiomatous nevi, it is much harder to get a perfect cosmetic effect, for the scarring is apt to be deeper and more irregular, and on the whole, a different procedure is advisable.

The negative pole should be attached to the sponge this time, and we substitute for the steel needle a coarser one, of either copper, zinc, or silver, attached to the positive pole. This should be introduced deeply into the mass, and a current of from three to five milliamperes used, as it is less painful than negative electrolysis. About the needle are evolved oxygen, which can be seen bubbling up, chlorin and an acid, which are destructive to the tissues. This effect, however, is less active at the positive than at the negative pole.

The peculiar value of this method is, however, that in addition to the local destruction of tissue, the needle is rapidly oxidized and decomposed, and there is deposited an oxychlorid of copper or zinc, which is carried by the cataphoretic property of the current and diffused, coagulating the blood in the vessels. The needle is roughened after a short contact just as a nail is rusted, and sticks closely to the puncture, but comes away easily enough by reversing the poles of the battery a few seconds. But in the great majority of cases of angiomatous nevi, it is not safe to make definite promises of a good result. The pigmented moles are best treated by negative electrolysis, and as the pigment is not deposited very deeply beneath the surface, the needle need not be introduced so deeply, better results being obtained by passing it just beneath the surface from one side of the mole to the other, repeating the process according to the size of the mark.

In all these cases there will follow for several hours some signs of cutaneous inflammation, which can best be treated by means of hot water. No great change in the appearance of the growth must be looked for at the time, but in the course of a few days a crust will form and come away, leaving in its place a slight scar, which constantly tends to become thinner and fainter. When the pigmented moles have hairs in them, they must be destroyed by a fine needle attached to the negative pole, introduced into the hair follicle until the hair comes out with very slight traction. This is generally much more painful, for while the moles themselves are not at all sensitive, the hair follicles are, and a correspondingly weak current must be used.

CLINICAL LECTURE.

THE USE OF BENZO-NAPHTOL WITH BISMUTH SALICYLATE IN THE TREATMENT OF THE SUMMER DIARRHEAS OF YOUNG CHILDREN.[1]

By SOLOMON SOLIS-COHEN, A.M., M.D.,
OF PHILADELPHIA;
PROFESSOR OF CLINICAL MEDICINE AND THERAPEUTICS IN THE PHILADELPHIA POLYCLINIC; PHYSICIAN TO THE PHILADELPHIA HOSPITAL, ETC.

Although not a professed pediatrist, it has fallen to my lot to see a sufficient number of cases of various forms of intestinal disturbance in children, especially during the hot weather, to have warranted the formation of an opinion concerning the proper method of treatment to be pursued in such cases. It has appeared, in so far as personal experience is concerned, that many of the nosologic divisions and refinements of diagnosis, which find place in the text-books and monographs, are of little practical account at the bedside. Whether the inflammation in a given case be confined to the colon or involve the ilium, whether it be intestinal only, or gastric as well, has seemed to be a matter of entirely minor importance. Indeed, the use of nomenclature involving the idea that the local inflammation was the important pathologic factor in the complexus of morbid phenomena presented, has seemed to be a survival of the errors impressed upon the profession by Broussais and his school. It is undoubtedly true that local morbid processes are present and of importance, and that if these proceed unchecked, inflammation so serious as to become in itself a source of danger may be produced; yet in the majority of cases in which infants or children present symptoms of disturbance of the alimentary canal, the local phenomena are those of irritation rather than of structural change, and the systemic phenomena those of intoxication chiefly. Thus, the apparent site of the local phenomena may change in the course of the case as the irritating materials change their position, and the same case successively appear to be one of gastritis, of enteritis, of ileocolitis, and of colitis, if we are to hold to the received nomenclature. For this reason the old terms cholera-infantum and summer diarrhea seem to me more expressive and less erroneously exclusive than the others mentioned; the former term being applicable to cases of severity, and usually attended with vomiting as well as purging, the latter to those of milder character in which purging is the main feature. But the question of nomenclature is of importance only as a name serves to recall a defined group of morbid associations; and the prerequisite to successful treatment of the classes of cases referred to is as clear an idea as possible of their origin, mechanism, and course.

[1] Therapeutic Talk, delivered at the Philadelphia Polyclinic Hospital.

The causation seems to be complex, involving nervous influence, mechanical irritation, bacterial infection, toxin absorption. The nervous influence depends on temperature; that is to say, the local circulation is injuriously affected, probably partially paralyzed, either by the heat of the weather, or by the injudicious administration of cold, often ice-cold water.

There is no doubt that the judicious use of cool water, internally and externally, aids in preserving the health of infants during the heated term, but it is a matter of common observation to find painful or spasmodic disorders of the alimentary canal caused by the sudden chilling due to the rapid ingestion of ice-water both among children and adults. Sucklings escape this danger, at times, because they are less inclined than older children or adults to "gulp" down a large quantity of cold fluid at a single draught. If cool water rather than ice-cold water be employed, and a small quantity held within the mouth, cooling its mucous membranes and at the same time being raised more nearly to body-heat before entering the stomach, this particular etiologic factor may be eliminated.

Irritation may be due to the mechanic or chemic qualities of the food ingested or to its contamination with microörganisms. Even when the food itself is harmless under ordinary circumstances, it may irritate a stomach or bowel depressed in function by the excessive temperature, or chilled by iced water. Want of scrupulous cleanliness as to bottles and nipples, cups and spoons, is frequently found to be a cause of septic contamination of food, even among families in which it would not be suspected; a fact that excuses the mention of a factor so well recognized. Milk or meat juice may contain noxious products of decomposition or bacterial action, even when there is no evidence of this given to the senses, and despite the fact that the milk has been pasteurized or sterilized. So too, with artificial foods, which, though perhaps sterile when put up, easily become unfit for use by exposure to the air and to moisture after the packages are opened. In connection with the latter preparations still another source of contamination exists, namely, the use of unboiled water in cities which, like Philadelphia, are supplied with diluted but unfiltered sewage for drinking purposes.

Whatever then, the character of the food that is being given to an infant or child presenting symptoms of gastro-intestinal disturbance, save only in the case of infants suckled by healthy mothers or wet-nurses, it should be changed immediately; and this, whether or not the exact source or nature of its unfitness can be discovered. The sickness of the child is a demonstration of such unfitness by *experimentum crucis*. No other is needed.

The alimentary canal should at once be cleansed of irritating and toxic matters. If this can be accomplished by the administration of a mild laxative, calomel in small doses, or castor oil and aromatic sirup of rhubarb, without lavage, it is better to avoid the passage of a stomach tube. I say this after sufficient personal experience with both methods. If, however, vomiting is marked, action urgent, and medication ineffective, the stomach should be washed with warm water (100° F.) and sodium borate or sodium bicarbonate, one dram to the pint. If desired, a bismuth mixture may be introduced through the tube before the latter is withdrawn. I have had no experience with this procedure. To cleanse the bowel a high enema of warmed normal salt solution is usually the best method. When, however, the laxative has acted promptly and satisfactorily, this may often be dispensed with. As a rule, I prefer, over mercurials, a mixture of equal parts of castor oil and aromatic sirup of rhubarb, sometimes with the addition of a few drops of paregoric. It is not unpleasant to take, is mild in action, and there is a desirable astringent after-effect. The dose should be in accordance with the age of the child; an infant of six months will take about a teaspoonful of the mixture, repeated if need be, once or twice, at intervals of one or two hours; a child of two or three years will take about a dessertspoonful; a child of seven to ten years, a tablespoonful.

After the bowel, and, if need be, the stomach, have been cleansed, I have found nothing more satisfactory to soothe and disinfect the alimentary canal than a powder, the use of which I first reported in THE MEDICAL NEWS for July 28, 1894, p. 97.

My own experience has been confirmed by that of many friends who have from time to time communicated with me. It consists of benzo-naphtol (benzoyl-beta-naphtol) and bismuth salicylate, usually in equal parts, with or without the addition of Dover's powder. The dose is regulated rather by the size of the powder, that is, the child's ability to swallow it, than by the quantity of active drug, except as regards the opium, which varies with the age of the child and the severity of the case. A child of six months can usually swallow three grains of the powder, say one and a half grains each of benzo-naphtol and bismuth salicylate, and some can take much more. When a sufficient quantity to produce the desired effect cannot otherwise be given, a dose of even five grains of each constituent may be divided into manageable portions (perhaps a little sugar of milk added, though this is rarely necessary) and given at intervals of ten minutes, more or less. The dose for an adult is about five grains each of bismuth salicylate, benzo-naphtol, and Dover's powder. It is the combination, not any one constituent that is effective. The intervals between doses vary from two to four hours, at first, and are prolonged afterward in accordance with the improvement in symptoms. Since resorting to this treatment I have not had to use chalk-mixture, or soda and rhubarb, or other mixtures of that kind.

It is important, however, to stop milk-feeding during the active treatment. Barley-water in small quantities is the best diet for two or three days. After that, freshly prepared meat juice, an unobjectionable proprietary food, Pasteurized milk, or even boiled milk may be used, under proper precautions as to cleanliness, physical and chemical. I have found the intermission of milk diet (or other food) the most difficult matter to enforce, not only upon mothers, but often in consultation cases upon the attending physician. Yet it is a factor of the highest importance in treatment. Children will do much better with no food whatever, than if food which readily decomposes or yields toxins is placed in an alimentary tract where all the conditions are favorable to such transformation.

The usefulness of the medication proposed seems to be that it assists in the return to normal conditions, so that food may again be safely taken.

Another error, against which it is necessary to utter a word of warning, is the practice of administering an opiate or an astringent, such as logwood, kino, or tannic acid, before the alimentary tract has been cleansed of offending, irritating, poisonous materials. The frequent stools are evidences of nature's efforts to get rid of these matters, and the physician who injudiciously locks them up in the bowel by his drugs aids the disease rather than the patient.

To sum up then, the proper line of treatment is rest, fresh air, cool bathing or sponging, cleansing of the alimentary tract, intermission of food liable to decomposition or fermentation, the administration of cool water and barley-water in small quantities, the water having been boiled and filtered when necessary, and medicinally the use of a sedative and antiseptic mixture, for which purpose benzo-naphtol and bismuth salicylate, with or without opium, are of great use. In cases of severity, approaching collapse, hot bathing, external application of heat, and the use of strychnin in appropriate doses, may be additionally necessary.

I have as yet said nothing concerning alcohol. It is often of use, in small quantities, and may well be given with the barley water; but there are many cases in which it is unnecessary, and the decision is a matter of good judgment in the individual case. I, at least, can formulate no general rule.

CLINICAL MEMORANDA.

A CASE OF TRAUMATIC RUPTURE OF UTERUS, WITH LACERATION AND STRANGULATION OF SMALL INTESTINES; OPERATION; RECOVERY.

By C. S. VAN RIPER, M.D.,
OF PATERSON, N. J.

THE following case is reported with a two-fold object: Because it is, in its nature, circumstance, and result, unique; and because it may serve as a warning to young practitioners of the danger attendant upon the rash use of "Goodell's Cervical Dilator" in the unimpregnated uterus.

On June 9, 1894, in the evening, I was consulted by a physician, who informed me that he had a patient, thirty years of age, multipara, her youngest child being twelve months old. She had been suffering with slight vaginal hemorrhage for the previous month, but gave no history of the usual symptoms of tubal pregnancy. He, supposing it to be due to polypoid degeneration of the endometrium, had an assistant etherize her, with the object of performing a curettage. The patient being under ether and placed in position, he introduced a sound, which, he informed me, passed into the uterine cavity about six inches. He, supposing from this circumstance that she was pregnant and would abort, thought it would be best to remove the fetus at once. He then introduced "Goodell's Dilator" and, as he supposed, dilated the cervix, there being, as he remarked, "considerable hemorrhage." After the dilation he at once introduced a placental forceps, grasping what he supposed was fetal membrane, and proceeded to remove it. After repeating this several times, he found that he had been dragging down and tearing the intestines. He immediately informed the husband that the case was of too complicated a character for him to handle, and advised her immediate removal to the Paterson General Hospital. On my arrival at the Hospital the patient was in a condition of extreme collapse. Temperature was $97\frac{1}{5}°$; pulse 140, small and compressible; respiration 24; abdomen greatly distended; tympanitis over median portion; modified dulness over each inguinal region; discharge of blood from vagina; extremities cold, and patient extremely irritable and nervous. Morphin sulph. ($\frac{1}{6}$ gr.) was administered hypodermatically, and she was then rapidly prepared for abdominal section. At 9 P.M. a median incision, extending from just below the umbilicus to pubes, was made. Abdominal cavity contained a large amount of clotted and fluid blood, which was flushed out with repeated washings of normal saline solution, when a mass presented itself, consisting of omentum, intestines, uterus, and appendages, closely matted together. I then found that a rent existed in the anterior wall of the uterus, extending from near the fundus through the cervix into the vaginal vault, and that in the fundus, near the juncture of the right tube with the uterus, but somewhat above same, was a perforation, through which had been drawn the intestines, morcellated by forceps, and now held completely strangulated by the band of uterine tissue, which existed between the upper boundary of the tear and the perforation.

This perforation in the fundus of the uterus had been undoubtedly caused by the passage of the sound. The placental forceps, following the course taken by the same, passed into abdominal cavity, grasped and drew the intestines through this perforation into the uterine and vaginal cavities. The expansion of the dilator undoubtedly caused the rupture of the anterior wall of the uterus, this tear being somewhat to the right of the median line. In the right tube, at the juncture of the outer third with the inner two-thirds, was a mass about the size of a hen's egg. Whether this had been occasioned by the trauma to the parts, or was a preëxisting condition, is hard to say. Probably, however, it was the former, as an examination later proved it to be a simple hematocele, the blood partially coagulated. The intestine, with a portion of omentum, was found to be so thoroughly strangulated in the aperture in the fundus that I was compelled to divide the band of uterine tissue between the laceration in anterior wall and the perforation, to relieve the incarcerated viscera. The latter were then wrapped in a moist napkin and laid on the upper portion of the abdomen. After a careful examination of the uterus and appendages, I deemed it advisable, owing to the greatly contused and lacerated condition of the parts, to at once remove them. This was accordingly done in the usual manner. The bladder and peritoneum had been completely dissected off from the anterior wall of uterus, evidently occasioned

by the blades of dilator, which, after rupturing the uterus, had slipped out and glided along its anterior surface, thus dissecting it free from the bladder, contusing the posterior wall and fundus of that viscus. Upon removal, the uterus was found to be normal in regard to depth of cavity and character of its walls. All hemorrhage from the pelvic viscera was now entirely controlled. Left tube and ovary normal. Attention now being devoted to the intestine, I found that the injured portion comprised twenty-six inches of the jejunum and a portion of the omentum. The lower sixteen inches had been badly crushed and minced by the forceps—so much so that in parts only a shred existed of the entire lumen of the gut; a segment of mesentery was also badly torn. I then decided, notwithstanding the extremely critical condition of the patient, to resect the portion of strangulated intestine. The Murphy's button at hand proved too large for the intestine. Its use was accordingly abandoned, and end-to-end anastomosis resorted to. The mesentery having been ligated by means of the catgut chain ligature, the two ends of intestine were brought in apposition by a continuous suture, including in the stitch the peritoneal and muscular coat. This was then fortified by a row of Czerney-Lembert stitches, including only peritoneum. The stump of mesentery was also entirely covered by peritoneum. Operation being thus completed, intestine was dropped back into abdominal cavity, which was then thoroughly flushed out with normal saline solution, leaving the cavity filled with it. Abdominal wound was closed by means of silkworm-gut sutures, passing through the entire thickness of wall, including the peritoneum, and binder snugly applied. Patient returned to room, placed in bed with foot well elevated, and a large enema of normal saline solution given, which was retained. Convalescence was uninterrupted by any complication save a cystitis, which developed a few days after the operation, undoubtedly as the result of the injury by dilator to the posterior wall of bladder. This trouble was readily relieved by daily lavage of the bladder with boracic acid solution. She left the hospital, in good condition, on July 30, 1894.

At the present time—eleven months after the operation—the patient is apparently in perfect health, the cystitis having entirely subsided, as has also the vaginal discharge. There were present at operation: Doctors McCoy, Blundell, Goodrich, Harris, and Neer. The intestine exsected was measured by Doctors McCoy, Blundell, and Goodrich.

A CASE OF HEMATEMESIS.

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It is not customary to report cases in which the diagnosis remains obscure and in which therapeusis has failed. The following case, however, is one in which so many questions of interest center that I wish to present it, with the hope that someone's experience may give a probable answer to the questions that an autopsy alone could have settled beyond dispute:

About three months ago I was called in consultation to see Mrs. H., aged seventy, but apparently sixty, who had been ailing for some months, the symptoms being referred to the stomach, though vomiting had not been marked, and the indigestion was not greater than is often noted in dyspepsias secondary to anemia, malaria, and other conditions of vital depression. The patient was large and fat still, though relatively emaciated, the skin lying in folds about the shrunken arms and legs. There was no dropsy and nothing of significance in the condition of the heart, lungs, kidneys, etc., according to the examinations made previously by the attending physician, Dr. S. A. Dunham.

Between the left lobe of the liver and the stomach, Dr. Dunham had discovered a mass, which I, at first, took to be the ribs and cartilages, but which a more careful examination showed to be on a lower level. This projected from beneath the left costal arch, and had an area of about one inch by two and a half. There was considerable tenderness in the middle of the epigastrium, but not to any marked degree over the mass. This mass did not seem to me to be a neoplasm; it was smooth and, except that its convexity was somewhat greater than that of the normal left lobe of the liver, it did not seem to differ from the palpable part of that organ.

An appointment was made to remove the stomach contents after a test meal on the following day, but, being unable to leave the house for several days, I failed to make this examination. Hydrochloric acid was recommended, there being considerable fermentation and belching of gas. About three weeks from the time of the first examination I was asked to see the patient again. At this time the stomach and liver were more accurately mapped, though the results did not differ materially from those previously obtained. The stomach reached as low as the upper border of the umbilicus, and an area, one inch in transverse and three in vertical diameter, lay on the right side of the median line; thus, there was slight dilatation, but not enough to warrant a diagnosis of obstruction at the pylorus. Neither the right nor the left lobe of the liver could be distinguished higher than the fifth intercostal space, while the right lower border did not extend quite to the costal arch—the right lobe should be found by auscultatory percussion or by heavy ordinary percussion from the fourth rib to the costal arch. The palpable mass answered to the resonance of the liver, not to that of the stomach; that is to say, percussion over it was heard when the stethoscope was held over the liver, but only very distantly when the stethoscope was moved to the gastric area. I have reported a case of hepatic carcinoma in which the cancerous mass, though intimately connected with the liver, did not vibrate so that percussion over it could be heard through a stethoscope held over the right lobe of the liver, and, in general, I believe that a structure which is of different character from the organ with which it is anatomically connected, will act as a separate organ on examination by auscultatory percussion. For example, a lung will ordinarily conduct vibrations from any part of its superficial area, but if a lobe is consolidated, it will not vibrate in unison with the rest of the lung, and will, therefore, be marked off by auscultatory percussion as a separate organ.

The patient seemed unchanged since my first visit, except that she complained of some difficulty in swallowing. Her daughter thought that there had been some loss of flesh. I was not able to satisfy myself whether the dysphagia was mechanical, or whether it was only apparent from a growing distaste for food. An appointment was made to examine the stomach contents on the following day, but Dr. Dunham was unable to keep the appointment. It was learned later in the day that the patient had died at about the time set for the examination, there having been a hemorrhage from the stomach and a tarry stool. If the passage of the tube and withdrawal of the stomach contents had not been providentially prevented, it would have been difficult to have convinced even ourselves that our interference had not been the cause of death. I recall a similar coincidence—not in my own practice—in which a patient died shortly before the time set for an operation under chloroform. If the operation had been begun, death would certainly have been ascribed to the anesthetic.

The possibility of a relation between the examination on the day previous and the hemorrhage must be considered. Palpation was not forcible, and the percussion used in connection with a stethoscope is the very gentlest tapping with a single finger. Except that the patient was assisted a few inches nearer the edge of the bed, she was put to no inconvenience from change of posture, nor was any more tenderness elicited than is often encountered in the examination of abdomens which prove to be perfectly normal. If the hemorrhage is to be ascribed to any part of the examination, it must be to the gentle palpation of the tumor.

Regarding the exact position and nature of the tumor, there is a difference of opinion. Dr. Dunham's original, tentative diagnosis was of pyloric cancer. This was disproved by the absence of palpable tumor in the proper locality and by the absence of any such degree of dilatation as would be compatible with actual stenosis. Considering the development of dysphagia and the fatal outcome, his later diagnosis of cardiac gastric cancer has much to support it. Relying on the results of auscultatory percussion—and here there may be a fallacy, on account of lack of sufficient experience upon which to base a positive opinion—and regarding the mass as properly a *tumor*, my idea was that there had been an extension of a hepatic cancer to the cardiac end of the stomach, but that the cardia was not involved, except by the growth of the cancer. There are, however, some objections to the diagnosis of carcinoma. It is rarely the case that a cancer reaches the stage of fatal hemorrhage without previous demonstrable oozing of blood or without marked cachexia. Yet the patient, though reduced from her weight in health, was still fat, her illness had not been particularly painful, there was no obvious metastasis of the growth, there was no jaundice, the liver was small, rather than large, the complexion was not only not cachectic, but was clearer than usual, considering the patient's age. I am inclined, therefore, to set aside altogether the diagnosis of carcinoma and to consider the case as a hematemesis, due to rupture of blood-vessels in the lower part of the esophagus or the cardiac portion of the stomach, the ultimate cause of the rupture being an obstruction to the portal circulation. There were no marked signs of either cardiac, vascular, or renal disease; the spleen was not palpable. For the sake of disturbing the patient as little as possible, the back was not examined, so that there may have been, and very likely was, a moderate splenic enlargement. The liver was distinctly, though not much, contracted—a condition which, in the great majority of cases, indicates sclerosis. The tumor had not the irregular feeling of a cancer, and it did not seem to extend to the stomach, the lower border being apparently distinct. Its exact nature I do not pretend to state, but it seemed to be a somewhat enlarged left lobe.

Paul Friedrich, in an article on "Varices of the Esophagus," translated for the *Medical and Surgical Reporter* of January 25, 1895, has collected a number of cases of esophageal varix, all due to what, in a general way, may be considered hepatic cirrhosis. The slight dilatation and probable catarrh of the stomach, with the symptoms of subacidity, fermentation, anorexia, etc., may all be explained on the ground of a predisposing hepatic sclerosis. External evidences of portal obstruction are not necessarily presented, especially when the patient has been resting in bed for some time. Dysphagia, though not mentioned by Friedrich, is somewhat characteristic of varicose veins of the esophagus. There was nothing in the appearance of the patient a day before her death to warrant so grave a prognosis for the near future, and this fact alone is not only a point against the diagnosis of cancer, but is characteristic of esophageal varix. Friedrich, speaking not of the underlying hepatic condition, but of the varix, states that the only prominent symptom, and often the only symptom, is the hemorrhage. Thus, unless the first hemorrhage is recovered from, there is absolutely no warning of the critical condition of the patient, even a few hours before death. The treatment would be on the general lines of an endeavor to check hemoptysis or hematemesis. The prognosis—perhaps in the present state of ignorance, metagnosis would be a more appropriate term—is grave. The case is especially interesting with regard to the proposed passage of the stomach-tube. Its use was certainly indicated in order to throw light on the case, yet the result of such manipulation, viewed from the present standpoint, would have been truly awful. Everyone, from the man whose prudence amounts to cowardice to the one who regards radical and scientific investigation as of paramount importance in any case, can draw the moral to suit his own views. The writer feels sure that he has prolonged life by the use of the tube, when subsequent events have shown that danger must always have been imminent from its use. Comparing such cases and the one here cited, the indication is for a mingling of caution and boldness. It is to be regretted that an autopsy could not have been secured in the present instance; but, whether the case was really one of esophageal varix or not, there is sufficient resemblance to that almost unrecognized disease to warrant using the facts and speculations which are contained in this article to call attention to a problem of diagnosis which we ought to learn to solve before death.

SPECIAL ARTICLE.

THE STERILIZATION OF HYPODERMIC AND OTHER SYRINGES BY BOILING.

BY CHARLES A. POWERS, M.D.,
OF DENVER, COL.

HOWEVER simple and efficient may be our present aseptic technic, there yet remain many minor details in which our methods fail to give entire satisfaction. We have hitherto been unable to sterilize injection syringes in which the piston and washers are made of leather. This difficulty is now, however, happily overcome by Hofmeister of Tübingen, who, in the *Centralblatt f. Chirurgie*, July 4, 1896, sets forth a method by which we may render these important instruments, absolutely aseptic.

His procedure rests on the principle that leather may be boiled at will in plain water after previous hardening in a formalin solution. The plan is as follows:

1. Only such syringes may be sterilized as consist of glass, metal, and leather. The metal parts must be united by solder or screws, rather than by cement.

2. The piston and washers are removed and freed from lubricating fat by ether.

3. They are then placed in a two to four per cent. formalin solution for twenty-four to forty-eight hours.[1]

4. After the formalin has been washed off, the syringe may be put together and is then ready for boiling.

5. All air should be removed by working the piston back and forth while under water; the syringe may then be boiled at will in plain water (thirty minutes should suffice).

I have thoroughly tested this procedure on a number of hypodermic, exploratory, and aspiration syringes, and can verify Hofmeister's statements in every particular.

Apparently the only change which the leather undergoes is a darkening and a slight thickening. Previous to immersion in the formalin solution, it may be well rubbed with gauze, dipped in ether, and after sterilization, it is to be again lubricated with sterilized oil. If the piston consists of two pieces of leather separated by an oil-space, I have found it well to insert the first of these in the glass barrel before boiling. A moderate swelling of the leather may necessitate trimming its edge with a sharp knife.

I have put an ordinary hypodermic syringe through this sterilization process four times, at intervals of two days, without apparent change in the leather. What its limitations are as regards repetition, time will determine. It may be that the leather will have to be removed from time to time. However, this may be, there are so many sources of infection in these syringes (exploratory aspiration of pus, for instance), and absolute asepsis when making injections is so much to be desired, that I am certain that this simple procedure will find wide employment.

[1] I have used a four per cent. formalin solution for twenty-four hours.

MEDICAL PROGRESS.

Pneumothorax Cured by Operation.—UNVERRICHT relates in the *Deut. med. Woch.*, for May 28, 1896, a case of "pneumothorax acutissimus" occurring in a young man aged twenty-three. The patient had been under treatment for some months for pulmonary tuberculosis. A sudden attack of pain in the left side and great dyspnea indicated pneumothorax, which the physical signs vaguely confirmed. The great mobility of the inserted hollow needle and the escape of air through it, when submerged, made the diagnosis sure, and a permanent fistula was established in the sixth intercostal space. The dyspnea was at once relieved. There was a considerable discharge from the wound of a purely serous character. This rapidly diminished, and in twelve days the fistula had closed, and all physical signs of pneumothorax had disappeared. The tubercular process spread, however, and by a strange fate, the patient died two months later with pneumothorax of the opposite side. The autopsy showed extensive tuberculosis of both lungs with cavities. There was marked right pneumothorax, but on the left there was no indication of the preëxisting pneumothorax, or the operation for it, excepting some slight adhesions.

This treatment is advocated in cases in which it is reasonable to suppose that the lung is distensible; and in all cases of pneumothorax acutissimus when immediate death from dyspnea is threatened.

Pain in Chronic Aortitis.—DURR (*France Méd. et Paris Méd.*, 1895, No. 32) points out that the existence of deep-seated retrosternal pain is often the diagnostic symptom of chronic aortitis. If the pain shoots in any direction, the presumption is that the disease has spread beyond the aorta, *e.g.*, into the coronary arteries, with symptoms referable to the heart muscle, or into the branches of the aortic arch with pain in the head or arms.

An anxious feeling, unaccompanied by respiratory disturbances, is characteristic of chronic aortitis; but the two absolutely pathognomonic symptoms are (1) an extension of the cardiac dulness in the second intercostal space to the right of the sternum, indicating an increase in the transverse diameter of the aorta; and (2) a filling up of the right intraclavicular fossa—the result of an increased length of the aorta. Of secondary importance is any change in the character of the second heart sound, for this depends on alteration of the valves, which is not a necessary concomitant to aortitis.

A Still More Extensive Breast Amputation.—TANSINI (*Rig. Med.*, April 5, 1896) holds that in the attempt thoroughly to remove all lymphatic glands, which may possibly have become involved, secondary to cancer of the breast, recurrence in the skin has been overlooked. He calls attention to the frequency of recurrence of this sort in the form of isolated nodules in or near the scar. In order to avoid such recurrence, he removes the overlying skin of the whole breast, and a strip about four inches wide from the breast into the axilla. To cover the defect, a flap is dissected from the back, with its pedicle near the axilla, and stitched in position over the wound.

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SATURDAY, AUGUST 22, 1896.

THE END OF QUACKERY IN BELLEVUE HOSPITAL.

DURING the past two months there has been carried on in Bellevue Hospital by the Commissioners of Charities, bound by oath to administer the charity hospitals of the municipality to the greatest benefit of the suffering sick, such a piece of quackery against its patients, and thereby there has been offered such an insult to the medical profession and the intelligent members of the community as we hope we shall never again have occasion to witness.

We now chronicle with becoming satisfaction the demise of the "drink cure" experiment. We hope soon to be able to furnish our readers a full account of the obsequies which the Commissioners are giving the corpse. The NEWS takes to itself no little satisfaction for the part it has taken in pricking this little bubble of the Commissioners. It brought to light the true inwardness of the undertaking by its discovery and exposure of the fact that the "cure" was backed by an incorporated, capitalized company. The consternation of the Commissioners occasioned by this exposé was such that the NEWS believed they would see the error of their way and immediately discontinue the experiment. But they have seen fit to persist in their arbitrary course, and in spite of the repeated admonitions of those who could foresee the result, they have continued in their insane efforts until they have made themselves not only ridiculous, but infamous. Now they have no credit and no thanks from anyone for the cessation of the experiment. "The cure has succumbed from natural causes," so say the Commissioners, and they are desirous of burying it without an autopsy. Monsters and abnormalities of all kinds interest, however, and we purpose looking into the immediate cause of dissolution in this case.

For the past month the spurious visiting physician to Bellevue Hospital has been very direlict in his duties; in fact, for two successive weeks of that time he did not favor the institution with his presence. During this period, the spacious hospital wards, which had been placed at his disposal, were useless, and the suffering sick were excluded, and that, too, at a time when the heat was the most trying and the demand for succor the greatest. To the shame of the Commissioners, be it said, that during a crisis that called for instantaneous and unequivocal action, they remained as impassive as though they themselves had been seized upon by the *rigor mortis* that had already laid hold of their darling foster child—the subsidized drink cure. Even the Warden of that institution, he who spoke from the depths of personal medical wisdom two days after the "cure" was instituted and proclaimed it "a Godsend," when informing the President of the honorable board of Commissioners of Dr. Oppenheimer's direliction frankly confessed his inability "to comprehend the situation in its present advanced form."

Even though the Commissioners hesitated at this juncture to revoke the privilege granted the owner of a secret remedy, they might still have sought and found escape from their predicament by enforcing a law of their own making, that all visiting physicians shall visit the Hospital at least three times a week. The ostensible reason for this delay was the desire to give the individual

Commissioner, who had stood sponsor for the experiment, an opportunity to prepare a report substantiating, as far as possible, his advocacy of an experiment which he and his fellow Commissioners knew in their inner consciousness was utterly futile; for failures, and numbers of them, are within their personal knowledge. The real reason, however, which they endeavor to conceal, was the hope that the MEDICAL NEWS, and others of their critics, would tire of their onslaught upon them, and when the subject had ceased to figure in the eye of the public, they could slip out of their unfortunate position without observation or comment.

Now, however, we call upon the Commissioners of Charities to put upon record their opinion of the pitiable and ignominious failure of their first effort in experimental medicine, and insist that it shall be couched in such language that, at least, he who reads between the lines, may detect their sincere sorrow and regret for their conduct. If they do not do this, we shall feel, so long as they remain in office, that being dominated as they now appear to be by their impulses and emotions, we shall not be secure from future trials of whatever silly fad they, their families, or their advisers may happen to embrace, whether it be Christian science or the Kneipp cure.

The real shortcoming in the present Board of Charities Commissioners is that they are boys in reality, although the Mayor would have us believe that they are "boys" only by his facetiousness.

ELECTRIC CURRENTS AND COMFORT.

EVER since the earliest discovery of electricity as a force, it has been a favorite popular theory that it was closely related in some way to "vital force," if, indeed, it was not a form of it. And to this day the general impression among the laity is that simply to charge the body or any part of it with electricity is to "fill it with new life," and that any belt, battery, or even hair-brush, which will give off electricity to the body is supplying it with force which can be directly used in its processes. Stories are told with bated breath of dead men brought to life by electricity and enabled to walk, talk, eat, etc., as long as the current was kept up; much as in the rural districts the belief obtains that dying men can be kept alive for hours, or even days, "onnaterally" by pouring frequent doses of whisky down their throats. Indeed, we are sometimes gravely asked whether the "vital spark" is not really electric!

That this implicit childlike confidence in the virtues of any form of the current is responsible for many of its most brilliant therapeutic triumphs, can scarcely be doubted; indeed, it is a question whether at least half its reputation as a remedial agent is not due to the vivid expectancy which it excites in the minds of our patients.

Great and genuine as are the therapeutic effects of the current, yet outside of electrolysis and certain nerve and muscle results, we are quite in the dark as to how they are produced, and any developments, however slight, which point in this direction are of interest. Dr. Augustus Waller has been conducting experiments of late upon infusoria and other floating organisms with this problem in view, and obtains some curious results. If a current be passed through a solution containing paramesia, the whole group of organisms is at first greatly disturbed, but shortly they begin to swim steadily toward the cathode in converging lines. If the current is now reversed, they promptly "right about face," and begin swimming toward the new cathode. Evidently they are more comfortable swimming with the current than against it. Other microörganisms tend to swim against the current, and others at right angles to it, but all are definitely and markedly affected by it. The same was found to be true of larger and more complex organisms—for instance, tadpoles, a group of which is at first thrown into wild commotion by the current; and when this subsides, is found to be arranged with the heads of all its members pointing toward the positive pole, letting the current pass through them from head to tail. A very weak current will produce no apparent effect upon tadpoles lying "head on" to it, but will cause those lying at right angles to wag their tails about. Is it possible that the soothing and pain-relieving effects of the constant current, and especially of a discharge from a "static" machine, may be due

to a similar effect upon the fixed cells of our bodies, and that the popular belief that beds should be arranged so that we can sleep with our heads pointing north, and allow the polar currents to pass through our bodies lengthwise, may have some shadow of scientific foundation?

ECHOES AND NEWS.

Meeting of the Tri-State Society.—The eighth annual meeting of the Tri-State Medical Society of Alabama, Georgia, and Tennessee, will be held in Chattanooga, Tuesday, Wednesday, and Thursday, October 13, 14, and 15, 1896.

Annual Meeting of the Academy of Railway Surgeons.—The third annnal meeting of the American Academy of Railway Surgeons will be held at Chicago, in the Auditorium, on Wednesday, Thursday, and Friday, September 23, 24, and 25, 1896.

Suffering in London.—A serious shortage in the water supply of this great city is reported both by the lay and medical press. From these it is hard to determine whether the increase of mortality in the eastern districts of the city is due to this cause or not, but it is generally admitted that the amount furnished falls much below what is required for the comfort of the population, particularly the improvident and poorer classes.

A New Home for the New York Skin and Cancer Hospital.—The northwest corner of Nineteenth street and Second avenue is being cleared to make ready for the building to be erected for the Skin and Cancer Hospital. For fifteen years this growing institution has occupied No. 234 East Thirty-fourth street, which has now become altogether inadequate. The new hospital is to contain all modern improvements, including a most complete system of baths, and will be erected within a year, at the cost of $80.000.

Changes in King's College.—Professor Lionel S. Beale has severed his connection with King's College, London, in which he occupied the chair of medicine. He also resigns the office of physician to King's College Hospital. Professor F. Jeffrey Bell, after seventeen years of distinguished service as professor of comparative anatomy in the same institution, has also resigned. The Council of the College have appointed Dr. Burney Yeo to succeed Dr. Beale, and Professor Curnow to occupy the chair of clinical medicine made vacant by the death of the late Sir George Johnson.

Organization of Opticians.—The opticians of Pennsylvania are endeavoring to form a State organization with the following objects: First, to elevate and advance the profession and the mutual intercourse and benefit of its members; second, to encourage opticians to perfect themselves in the study of optics and the scientific adaptation of lenses in correcting errors of refraction; and, third, to discourage the haphazard and indiscriminate sale of spectacles by irresponsible and ignorant persons. Is it not probable that the opticians of Pennsylvania, in this endeavor to broaden the scope of their work, may be tempted to undertake duties for which only the trained oculist is prepared?

Defects of Vision Among English School-children.—In a report of the examination of more than 8000 children in the elementary schools of London, Mr. Brudnell Carter stated that thirty-nine per cent. were found to have normal vision in both eyes, and the same percentage had subnormal vision in both eyes. The remainder were defective in one eye, while its fellow was perfect. As to sex, there were ten per cent. more boys than girls with normal vision. Myopia was of infrequent occurrence, and, contrary to the experience of similar observers in the German schools, no increase in the per cent. of defects was discovered among children of the older than among those of the younger grades.

A Just Protest.—An appeal signed by more than one hundred physicians in the United States will be sent to the General Council of the International Red Cross Society, calling attention to the non-observance by Spain in the Cuban war of the stipulations unanimously agreed to at the congress held by the Society, in which Spain, as a nation, took part. It was at the conference specified that in all international or civil wars the hospitals, wounded men, surgeons, and nurses of the enemy, should be respected by the contending parties. Attention is called in the physicians' protest to the frequent mention made in Spanish official reports of the capture and destruction, by the Spanish troops, of the hospitals of the Cuban insurgents.

Painless Death for Incurables.—A popular discussion has been inaugurated by the sermon of a leading California minister, in which he advocated as a practice, the relief of the incurably ill or mortally wounded by speedy death. His suggestion has been met by strong opposition based upon the sixth commandment as a text. As the physician will find himself called upon to act in the capacity of judge as well as executioner in any such emergency, it is best to leave to his ethical sense and the dictates of his own conscience to determine just where his duty lies in each individual case. It is needless to say that no one would lightly assume such grave responsibilities.

Medicine as a Moral Agent.—Whereas formerly the sulky, stupid, or ill-tempered boy was commonly relieved of such distemper by the master's rod, it is now believed by a certain school of psychologists that with the judicious use of internal remedies his case is better reached than by this time-honored method of counter-irritation. A clearer insight would discover the salutary effects of a dose of castor oil in many instances. The writer once knew the wife of a physician who habitually administered purgative doses of calomel to her two little boys with the sole intention of improving their dispositions. No less an authority than Dr. Lauder Brunton has directed the attention of the profession to the fact that many quick-tempered persons are really victims of masked forms of gout or rheumatism,

and may be relieved by appropriate remedies which he has facetiously called *temper-powders*.

A Hygienic Sewing-Machine Treadle.—An improvement to the sewing-machine is announced, which will be joyfully welcomed by all of us who have working-women as patients. The old treadle, with its up-and-down movement of the entire limb, and wearying, cramping strain directly upon the muscles of the calf and front of the thigh, and indirectly upon the lumbar region, is to be abolished, and its place taken by a hanging platform, swinging pendulum-fashion. Upon this the foot rests easily and is swung backward and forward, the momentum being furnished mainly by the weight of the foot alone, instead of by that of the entire limb as before. The thigh remains almost motionless, and the economy both of effort and discomfort is most decided. Either foot can be used alternately or both together, thus giving relief from the monotony of the constant movement.

Nordau's Methods of Work.—Dr. Max Nordau's name was originally Dudfield, and Nordau was at first simply a pseudonym, which, with the consent of his father, he afterward legally assumed. He lives in Paris above a wine-shop, and here is his description of his modes of work: "I spend my days in paying visits to my clients and receiving visitors. In the intervals I attend to my journalistic duties, for I am the Paris correspondent of the *Vossische Zeitung*, of Berlin, and I also contribute to the *Frankfurter Zeitung*, writing on all subjects. It is not till after dinner, that is to say, at about half-past eight, that I sit down to my table to write my books. I then work till eleven o'clock, or midnight, as the inspiration goes. When I set pen to paper I am sure of the last word of what I am going to write as I am of the first. But I find it hard to sufficiently concentrate my mind at first, and the work of the first hour is about equal to the work of a quarter of an hour later."—*Literary Digest*.

Obituary.—In the death of Dr. Joseph Meredith Toner of Washington, D. C., on August 1st, the profession of America has lost one of its most distinguished members. For almost a half century he has made the influence of his energetic and magnanimous nature felt throughout its ranks. In 1871 he founded the Toner Lectures by placing $3000 in the hands of trustees. By the proceeds of this at least two lectures, based upon original research, are annually secured. His library, containing many rare and valuable volumes, has been placed in the Congressional Library at Washington, where it is kept separate from the other books. Dr. Toner was born in 1825, graduated in medicine from Jefferson Medical College in 1853, and after two years settled in Washington City, where he has since been actively engaged. Dr. Toner served as president, and subsequently as trustee, of the American Medical Association; he was vice-president of the International Medical Congress in Philadelphia in 1876, and has occupied the highest positions of honor in many smaller associations. His contributions to medical literature show him to have possessed a mind naturally broad and philanthropic, which he had widely cultivated.

New Method of "Doctoring" Milk.—It has been discovered that milkmen in Bordeaux, France, were in the habit of using certain yellow powders to preserve their milk. M. Denigès succeeded in obtaining possession of three samples of this powder and subjected them to chemical analysis. "This analysis showed that two of the powders were composed wholly of neutral chromate of potash, that the third was a mixture of one part of bichromate of potash and two parts of neutral chromate, and that the suspected milk had been adulterated with the latter in the proportion of 0.30 gm. to the liter (5 grains to the quart). The alkaline chromates are powerful antiseptics, capable, even in small quantities, of retarding lactic fermentation if not of stopping it completely. But because of the pernicious action of these salts on the organism they ought to be completely excluded from food substances, and particularly from milk, of which many young children drink relatively large quantities. These chromate powders are sold in packages of 2 gm. (30 grains) each of which should suffice to preserve about fifty quarts of milk, which would correspond to 0.04 gm. (0.6 grain) of antiseptic to the quart, evidently a minimum proportion. But it is likely that the milkmen will be induced to augment this quantity, either because it is insufficient to preserve the milk during the high temperatures of summer, or in order to restore the color of the liquid, due normally to hemolutein, a yellow pigment, when it has been lessened by skimming the cream, adding water, or by inferiority of quality, and thus to cause a mediocre product to pass for a milk of greater value." Knowledge travels rapidly, and even American milkmen may not be above such practices. Let us hope that the inspector may be as canny.

CORRESPONDENCE.

"THE STRYCHNIA CURE OF ALCOHOLISM AND THE OPIUM HABIT."

To the Editor of The Medical News:

Dear Sir: Will you allow me a short space in which to disagree with Dr. C. L. Dana in his advocacy of "Strychnia Cure of Alcoholism and the Opium Habit." I could not but disagree had I read nothing but the title, because it implies the cure of a habit with a drug.

A habit is an ingrained quality of the organism, a result of more or less prolonged impress of the different factors of the environment of that organism. It might be said to be a natural state, however artificially produced.

Alcoholism is a state of the nervous system produced by the use of alcohol through a long period of time, and most often through more than one generation. It is a nervous system so accustomed to the stimulating and sedative effects of alcohol that it can have no stability without its accustomed food. Indulgence in this habit is at the expense of all the individual's moral interests; all of his family, business, social, and religious interests suffer. If the individual can be made to understand this, and if he has any family, business, social, or religious ties, pulling him in the other direction, he may be cured. To-

effect a cure he must understand that the responsibility is all his own.

While, of course, it is commendable in our profession, as in all others, to live up, as close as may be, to the never-say-die principle, and strive always to find a cure for everything, I think we may in this effort occasionally do harm. We certainly do harm when we lead inebriates to believe that they can be cured by drugs. What their appetites and longings require is a stimulant and a sedative, and to give them temporary relief with strychnia and bromids only leads them to believe that they can be cured without any exertion of their own. Only a few days ago I heard a young man say that he was not afraid to drink now, because he could take the Keeley Cure once a year and get straightened out again. Such perfect faith as this is not at all uncommon, and the flattery of imitation of the object of that faith by leading physicians and hospitals does not tend to weaken it.

My experience has been, and, I think, it will find substantial support in the experience of others, that an inebriate who still has some regard for family, social, business, or religious ties can be benefited if he can be made to understand the extent of the danger. Or, in other words, if he has anything left upon which to build appetite and desires stronger than that for the drug.

All inebriates are such through ignorance alone, and many among the better classes can be cured by making them see that all their better interests are in the gravest danger. This may be done by showing them that, even though they may not be *ruined* by it, at best it has a very bad effect on the stomach, liver, and nervous system, and that the appetite they build up is likely to be transmitted to their offspring. Those who are stupid and uneducated, or have no moral ties, such as we see most often in hospital practice, offer little encouragement in the hope of curing them. To give them a staff to lean on, it seems to me, is not the way to give them confidence in themselves, it gives them confidence in the *staff*, and therein lies the harm. Many of these having no family, social, business, or religious ties have nothing but their drink appetite to make life worth living. The attempt to cure these with a drug is just as rational as the attempt to cure the better class with a drug, and is to be commended more for courage than judgment.

Yours,

GEORGE S. BROWN, M.D.

BIRMINGHAM, ALA.,
August 11, 1896.

HYPODERMOCLYSIS IN THE TREATMENT OF THERMIC FEVER.

To the Editor of THE MEDICAL NEWS:

DEAR SIR: The season of the year and the recent universal experience of prolonged high atmospheric temperature, with the likelihood of more of the same to follow, will sufficiently explain my apparently premature communication.

On page 1132 of the American Text-book of Applied Therapeutics, I suggested, upon theoretical grounds, the possible value of hypodermoclysis as an adjuvant in the treatment of some serious cases of thermic fever.

Recently, while temporarily in charge of the medical wards of the Pennsylvania Hospital for Dr. J. C. Wilson, I have had the opportunity to observe the effect of the measure in one case where its beneficial action was sufficiently marked to somewhat confirm my theory.

My reasons for thinking of the possible value of hypodermoclysis in these cases are, briefly, as follows: Thermic fever usually prevails after a high external temperature has persisted for at least three or four days. During these days the body has been losing much fluid through perspiration. Certain cases of thermic fever are, for a variable length of time after the reduction of temperature, in almost as grave a condition as before such lowering of body-heat was accomplished. Inasmuch as in a very large number of cases of thermic fever the symptoms rapidly disappear after reduction of temperature, there must be some factor other than the high bodily temperature alone, which continues to be present in those cases wherein improvement fails to follow the fall in the bodily temperature. If, in such obstinate cases, bleeding is performed, it is found that the blood flows very sluggishly from the vein, that it is thick and tarry, and that it is evidently lacking in its fluid portion. Such being the case, it seems not unreasonable to surmise that the persistence of coma, stertor, muscular rigidity, etc., may be due to the lack of water in the blood. Why some cases should suffer from this condition, while others escape, it is difficult to say, but careful inquiry might elicit some facts in regard to the amount of perspiration lost, the amount of fluid ingested just prior to the attack, and other features of the various cases that might throw some light upon this difference in course. Being quite imbued with the plausibility of this theory, I requested the Resident Physician to employ hypodermoclysis in this class of cases of thermic fever. Such a case occurred a few days ago in the person of a contractor, aged forty-eight years, who was brought to the Hospital from the Broad street station at 8.30 P.M., on August 12th. He was rubbed with ice on the way to the Hospital, in the ambulance, but on admission he was found to have a temperature of $109^{3}/_{5}°$; pulse 154; respirations 33. He was unconscious, but not convulsed, with moderately contracted pupils and markedly stertorous respiration. He was at once put in a tub of iced water and given nitro-glycerin ($\frac{1}{100}$ gr.) hypodermically. After being in the tub for five minutes he was removed, placed on a bed, and was vigorously "ironed" with ice. At seven minutes after nine his temperature was $103^{2}/_{5}°$; pulse 146; respirations 32 and irregular. At this time he began to have spasmodic contraction of the extremities. At 9.35 he became very cyanotic, the respirations became slow and labored, requiring, finally, the use of artificial respiration and the battery. At 10.05 his temperature had remained below 103° for some time, but there was marked twitching of the right side of the face added to the previous spasmodic contractions. The pulse at the wrist was imperceptible at this time. At 10.18 he was "fearfully cyanotic," and the jaws became rigidly fixed. He was bled from the median basilic vein to the

extent of sixteen ounces, immediately after which the respirations became more deep and quiet and the spasmodic twitching lessened. At 10.25 half a pint of sterilized normal salt solution was slowly introduced beneath the skin of the pectoral region on both sides. The pulse at once improved, and at 10.40 he became conscious and gave his name, while at about the same time the twitchings ceased.

Nothing further of interest has occurred up to the present time, the patient being thoroughly rational, perfectly comfortable, and showing no symptoms, save for slight elevation of temperature, that is easily accounted for by a quite severe glossitis that has resulted from a lacerated wound of his tongue, produced by his teeth during his period of pseudo-convulsions.

The case will probably be reported by the Resident Physician, Dr. J. C. Starbuck, in a future paper upon the cases treated by him during the summer. I have made this preliminary report in order to draw attention at once to an adjunct in the treatment of thermic fever, the action of which much impressed those who saw it used in the case here related, and in the hope that the use of hypodermoclysis may prove to be of value in this extremely obstinate condition sometimes present in thermic fever.

Should any of your readers employ the measure, I should be very glad to learn whether its further use bore out the theory above advanced, and confirmed the advisability of still further adopting this as a procedure of some value.

Sincerely yours,

FREDERICK A. PACKARD.

PHILADELPHIA, PA.,
August 14, 1896.

SOCIETY PROCEEDINGS.

BRITISH MEDICAL ASSOCIATION.

Sixty-fourth Annual Meeting, held in Carlisle, England, July 28, 29, 30, 31, 1896.

(Continued.)

THE SECTION ON MEDICINE.

FIRST DAY—WEDNESDAY, JULY 29TH.

On taking the chair, GEORGE F. DUFFEY, M.D., of Dublin, delivered a brief address in which he expressed his gratitude for the compliment paid, not so much to himself personally as to the "Irish School of Medicine" in selecting him as chairman of this Section. He indulged in a number of happy references to the early history of the Association, mentioning the name of William Stokes as indissolubly connected therewith. The Section, he said, was to be congratulated upon the interesting subjects which had been selected for its discussion at this meeting. From the beginning the attendance was large and intense interest was manifested.

The first subject presented was:

THE TREATMENT OF CARDIAC FAILURE.

This discussion was opened by an exhaustive speech from Sir Thomas Grainger Stewart, who first laid emphasis upon the great value of rest, and then referred to "hope" as an important factor in the treatment. He next touched upon the usefulness of a well-ordered dietary in the management of cardiac disease. The treatment by systematic exercise and baths after the methods of Dr. Schott, at Mannheim, occupied the attention of the speaker for quite a time. In this connection two very excellent skiagraphs of the heart were exhibited, showing the position of the organ from in front and behind with singular clearness of detail. He then spoke of drugs and also considered paracentesis as more or less helpful in the management of severe cases. The chief thoughts of those who joined in the discussion centered about the question of the value of the Schott method, and while many, perhaps the majority, were emphatic in their expressions as to its undoubted value, others were deeply impressed with the disappointment they had found in its results. Dr. Herringham, in his remarks questioned the value of auscultatory methods in determining heart disease, which drew a reply from Dr. Bezly Thorne. Dr. Leith thought the carbonic acid in the baths at Nauheim an important element of the treatment, while Drs. Liddell and Edgecombe claimed that the sulphur baths at Harrogate were quite as effectual as the Nauheim waters. Dr. Byrom Bramwell advised rectal feeding.

SECOND DAY—THURSDAY, JULY 30TH.

The Section opened promptly at 10 o'clock and without delay the chair called upon DR. FREDERICK TAYLOR to open the discussion upon

ANEMIA.

The author considered three distinct varieties of this malady—namely, splenic anemia, chlorosis, and pernicious anemia. He said a classification including the secondary varieties would involve too much detail, and would not be considered in the present discussion. Attention was directed to the occurrence of sclerosis in the spinal cord in cases of profound anemia which had been observed by Dr. James Taylor. Rest was recommended as the most important item in the treatment of chlorosis, while arsenic gave most favorable results in the pernicious form. Splenic anemia was really more common than was generally believed, and not infrequently mistaken for lucocythemia. An active discussion followed which was interrupted to witness a lantern demonstration by Dr. James Taylor, of the sclerotic changes in the posterior and lateral columns of cord that occurred in certain cases of profound anemia, and others by Dr. Ransom, showing in a series of slides the changes observed in the kidneys, liver, spleen, and intestines, and also the fact that in his experience the iron deposits in the liver were in the cells. The further discussion of this subject continued until almost two o'clock, and the want of time made it possible to hear only two other papers, which were presented without discussion.

THIRD DAY—FRIDAY, JULY 31ST.

TUBERCLE.

In the light of the deliberations of the Royal Commission on Tuberculosis, this subject had a peculiar interest, and was wisely selected as the chief topic for Friday's consideration. Dr. Moore opened with an exhaustive

paper, in which he seemed deeply impressed with the need for some measure whereby the great mortality from this disease might be reduced. He first dealt with the bacillary origin of tuberculosis, and then briefly considered the early signs of consumption. Next he considered the damage which tuberculosis does and the various modes of infection. Methods of prevention, hospital treatment, and the therapeutics of the disease received due attention. Finally the subject of compulsory notification was treated. On this point, Dr. Moore thought that, while compulsory notification of all cases was not feasible, yet voluntary notification should be encouraged, and that notification of death from tuberculosis should be compulsory. Dr. De Havilland Hall pointed out the importance of the removal of adenoids and hypertrophied tonsils; these, with the nasal mucous membrane, were the frequent sites of entrance of the bacilli. The good results of guaiacol were mentioned by Dr. Shingleton Smith. At the suggestion of the Chairman, a resolution was offered requesting the council of the Association to use its influence in impressing the Government with the necessity: (1) That provision should be made, at the public expense, for bacteriological laboratories by all sanitary authorities, where the sputum of patients suspected to be suffering from tuberculous disease may be examined and reported upon; and (2) that on the discovery of pulmonary phthisis in any individual of the poorer classes, public provision should be made for the treatment of such case in a public institution, provided for the purpose at public expense and by voluntary contributions. In speaking to this resolution, Professor Gairdner said: "The sooner that tuberculosis is looked upon as a plague, and treated as such, the sooner will the terrible mortality from it commence to diminish."

Section on Surgery.

First Day—Wednesday, July 29th.

The work of this Section opened with a discussion on

the surgical treatment of prostatic hypertrophy,

by David McEwan, M.D., of University College, Dundee. He discussed the various theories offered in explanation of the effect of castration in this disease. He accepted the statement that the very large, soft prostate is more readily influenced by removal of the testes than the hard, fibroid form. From a study of the records of thirty-seven cases of resection of the vas, he found that as many as twenty-six cases were successful. He had, himself, performed double orchectomy in three cases, with good results, and had obtained some slight benefit from resection of the *vasa deferentia* in one case. Mr. Reginald Harrison, who has had a larger experience than any other English surgeon in vasectomy, reported that out of ten cases of bilateral division of the vas deferens, five had received great and lasting benefit. In twelve cases, one vas only was divided, but even then benefit was secured. Mr. Mansell Moullin thought that in advanced age double castration was the operation to be advised, but that earlier in life prostatectomy was to be preferred, if the condition of the patient allowed of such an operation. Dr. Sandberg of Bergen, expressed astonishment that Professor Senn of Chicago should have expressed the fear that castration would be resorted to for vesical calculus, chronic cystitis, and malignant disease of the bladder, if it was recommended for prostatic hypertrophy, and warmly maintained that surgeons in Norway could not be guilty of such surgery, whatever American practitioners might do. Professor Cameron of Toronto, Canada, related his experience in bilateral castration, and reported nineteen cases: One patient died of suppression of urine on the fourth day, and in two others mental symptoms developed. In one of these an extract of fresh sheep's testicle was administered, *à la* Brown-Sequard, and improvement quickly followed.

Dr. Lauenstein of Hamburg, read a paper upon

subphrenic abscess

And reported six cases. He insisted that all these cases should be handed over by the physician to the surgeon for operative procedure. This suggestion proved rather startling to an audience of English surgeons.

Dr. Snow read a paper on

my experience in operations for malignant disease of the breast,

in which he made special reference to the insidious marrow lesions to which he has frequently called attention.

Mr. Stoker gave a demonstration of the

treatment of ulcers by oxygen gas.

Lantern slides were shown and two patients exhibited, in which marked success had attended the use of the gas.

Second Day—Thursday, July 30th.

The greater part of this session was occupied by an interesting discussion upon the

surgical treatment of appendicitis.

The subject was introduced by an admirable paper from Dr. MacDougall. In this, particular stress was laid upon the rapidly fatal termination of many cases when not operated on, and he advised early operation in cases presenting urgent symptoms, but did not consider operation should be the rule in every severe case. He favored removal of the appendix only in those cases where it could be easily accomplished without breaking down protective adhesions in so doing. In this advice all the subsequent speakers concurred. Mr. Southam spoke of relapsing appendicitis, of which variety he reported ten cases. He expressed the belief that such cases should be subjected to operation after the second attack. Mr. Morton of Bristol pleaded for operative treatment in all severe cases, as he thought it impossible to be sure that general peritonitis had not just begun or that a collection of pus was not already present, which might rupture at any moment and set up general inflammation. Mr. Jordan Lloyd of Birmingham advised a vaginal or rectal evacuation when the pus was within the pelvic cavity. Others spoke of the necessity for rapid operation, and also considered early operation imperative in certain varieties of cases, which they endeavored to define. Mr. Banks doubted if mischief in the cecum might not be the cause of many abscesses supposed to arise from the appendix.

Dr. Blocii of Copenhagen called attention to the

possibility of removing certain tumors from the kidney, instead of performing nephrectomy.

DR. CAMPBELL of Belfast spoke of the advantages of the sacral methods of operating in diseases of the rectum and adjacent organs. Dr. Banks related his experience with the Murphy button, which had been favorable, as a rule. Mr. Tubby presented a paper upon

METATARSAL NEURALGIA.

Abscess of the liver was next considered.

THIRD DAY—FRIDAY, JULY 31ST.

THE SURGERY OF THE SUBPERITONEAL TISSUE

was discussed in a valuable paper by Mr. ANDERSON, in which he accurately described the position of this tissue and the various morbid conditions to which it was subject. This paper gave an exhaustive treatment of this broad subject, the material for which was chiefly drawn from current medical literature. Dr. MacDougall spoke of its bearing upon certain cases of appendicitis. Cases of sarcoma and lipoma located in this tissue were reported by members. Dr. Sandberg of Bergen advocated the use of tuberculin as a therapeutic agent. A number of interesting cases illustrative of diseases and injuries of the spinal column were reported, and a discussion upon the merits of operative treatment in such conditions naturally ensued. After this DR. BRONNER read a paper upon

OPERATIONS ON THE MASTOID,

and the work of the section was concluded by a presentation by Mr. Albert Morrison of the report of two cases of Jacksonian epilepsy.

SECTION ON OBSTETRICS AND GYNECOLOGY.

The chairman delivered an address upon

THE MORE RECENT DEVELOPMENTS OF GYNECOLOGICAL SURGERY.

He said that in no department of medicine have advances been more repaid, in none has the evolution of our art been more conspicuous and in none the results more brilliant than in gynecology. The great problem now is uterine cancer. When we consider the increasing prevalence of cancer of the uterus it is not to be wondered at that its surgical treatment during the last decade has come into special prominence. There cannot be fewer than eight thousand women now suffering from this disease in England and Wales. Of all women who die of cancer one-third die of cancer of the uterus. The treatment is removal at as early a date as possible. Not only the immediate but the remote results of vaginal hysterectomy are eminently satisfactory. For vaginal hysterectomy to be successful, mobility of the uterus and freedom of the fornices are the essential points. All partial and incomplete operations are practically valueless. If the whole of the diseased structure is not removed the patient, in the majority of instances is worse than before.

During the past ten years, both in private and hospital practice, he had seen over three hundred cases of malignant disease of the uterus. He has been greatly surprised to see how few among these conformed to the requirements likely to make the operation of permanent value to the patient. The responsibility for this rests both with the patient and the family physician.

Hysterectomy for conditions other than cancer requires very careful guarding. Like the removal of the uterine appendages for inflammatory disease, this operation bids fair to be overdone. Vaginal hysterectomy, as recommended and practiced successfully by some American surgeons for puerperal sepsis and puerperal thrombosis, can very seldom be reasonably advised for three reasons (1) The onset is so sudden and the general systemic infection so rapid that no purely local measures are of any avail. (2) In cases of slow infection from foci in the interior of the uterus, satisfactory results can be obtained by irrigation and curettage. (3) The condition of the septic puerperal woman is unfavorable for such a serious surgical procedure. The *post-partum* condition, which lends itself most readily to vaginal hysterectomy, is that first mentioned by Sänger and discussed recently by Spencer and Eden—viz., deciduoma malignum.

Abdominal hysterectomy for bleeding or rapidly growing fibroids is an operation that, except in the hands of experienced operators, is not to be undertaken without considerable anxiety. The ligature of the broad ligaments and uterine arteries, the substitution of the intra- for the extraperitoneal stump, the complete removal of the whole organ by pan-hysterectomy and the remarkable results obtained make these the most reliable methods of dealing with these growths. Among the most recent suggestions for the removal of the annexa is that of Dr. Beatson of Glasgow, who had shown cases of cancer of the breast so advanced as to be inoperable, but in which he had removed the ovaries and tubes, with the result that in one case an apparently hopeless cancer of the breast was actually cured, while in the others a marked improvement took place. As another example of the potent influence of the ovaries upon the general economy, may be mentioned the accidental discovery and development of oöphorectomy for the cure of osteomalacia —a once thought hopeless disease. This is one of the most striking results of the development of gynecological surgery during the past decade. In the adoption of some of these more recent suggestions some of us may appear somewhat conservative, and others inclined to press matters too far and risk too much, yet the end we aim at is one—we can all take our part in that race whose goal is the alleviation of human suffering, whose prize may be shared by all.

The discussion of

DYSMENORRHEA

was introduced by PROFESSOR MURDOCK CAMERON in which he advocated dilatation for the spasmodic form and expressed his preference for graduated metal dilators. Dr. C. Martin thought rest was beneficial in nearly all cases, and hot vaginal douches in inflammatory cases, tampons of glycerin and ichthyol, and saline aperients. Morphin and alcohol should never be recommended. Bromids, belladonna, and cannabis indica he had found most useful, and viburnum a most excellent sedative. In

grave and incurable disease of the appendages their removal was indicated.

In the continuation of the discussion much stress was laid by others upon the rheumatic origin of dysmenorrhea, and the benefit of cycling. The uses of phenacetin, antipyrin, and electricity were extolled.

THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Forty-sixth Annual Meeting held at Harrisburg, May 19, 1896.

FOR the fourth time in its history, the Medical Society of the State of Pennsylvania convened beneath the shadow of the Executive Mansion in the attractive city of Harrisburg. This is literally true, for the sessions were held in the commodious chamber of the House of Representatives, which, as a convention hall, lacks but one quality, that of good acoustic properties. Thrice before, in 1868, 1877, and 1892, had the Dauphin County Medical Society extended to the State Association its cordial hospitality, and when once more the honor devolved upon it of welcoming the physicians of the State, every effort was made by the committee of arrangements and credentials, under the able chairmanship of Dr. W. T. Bishop, to excel in scientific interest and entertainment, the previous meetings in Harrisburg. That its efforts did not prove futile, all who were present will attest. Notwithstanding the unfavorable weather, which persisted throughout the three days of the convention, rendering the donning of overcoats a necessity, and materially increasing the organic (bacteriologic) constituents of Susquehanna River, the hearty spirit of good-will that existed, and the cordial hospitality of the citizens combined to render the meeting a success.

As heretofore the dominant features of the occasion were the social attractions, preëminent among which should be mentioned the reception tendered by Governor and Mrs. Hastings at their private residence on Wednesday evening, the 20th. Assisted by Private Secretary and Mrs. Beibler, the Governor received his professional visitors in the red room of the mansion, while Froelich's orchestra, stationed in an alcove, rendered choice music. The reception on Tuesday evening, at the Pennsylvania State Lunatic Asylum, was preceded by a charming tally-ho ride from the Commonwealth Hotel, and the visitors were welcomed by the superintendent, Dr. H. L. Orth, and the trustees of the institution. The president, Colonel Louis W. Hall, delivered a short address, which was eloquently responded to by Dr. T. D. Davis of Pittsburg. The receptions by the Dauphin County Medical Society on Thursday evening, at the Commonwealth Hotel, and on Wednesday noon by the Board of Managers of the Harrisburg Hospital, were well attended and much appreciated.

A notable feature of the convention was the celebration of the centennial of the discovery of the vaccine virus by Dr. Edward Jenner, which took place on Friday morning at Marietta. The discovery was completed May 14, 1796, but the celebration was timed to give the State Medical Association an opportunity of participating in the exercises, and, at the same time, of inspecting the vaccine farms of Dr. H. M. Alexander, at Marietta. These farms are considered the greatest of their kind in the world, and it was there the celebration took place. Fully three hundred people were present, and they were welcomed in an address by Colonel D. B. Case of Marietta. Dinner was served after an inspection of the farms, and was presided over by Dr. W. T. Bishop of Harrisburg. Toasts were responded to by Dr. W. M. Welsh, and Dr. E. W. Holmes of Philadelphia; Dr. M. R. Richards of New York; Professor E. O. Lyte, principal of the Millersville State Normal School; Dr. Rahler of Harrisburg, and Dr. H. W. Alexander. Literary and musical exercises followed.

DESCRIPTION OF THE FARMS.

The Lancaster County vaccine farms, adjoining Marietta, were begun on a modest scale by Dr. Alexander, and have grown within a decade to be the greatest of such establishments in the world, over six million points, besides crusts and lymph tubes, being shipped in a year. Besides these farms, Dr. Alexander has a similar place at Evansville, Pa., containing 167 acres.

On the Marietta farms, the stables have a perfect system of heating, ventilation, and sanitation, the floors being concrete and easily flushed into six tile sewers. All the stall floors are slightly raised. The preparing and finishing stables are divided into several sections. In one, newly received cattle are examined, and registered if the tests applied to discover the existence of disease are favorable. Passing another stable, where they are groomed and fed, they finally reach the incubation stable, as needed. The capacity of these stables is five hundred head, all young heifers, secured in Lancaster county.

There are six tables in the operating-room, which is finished in hardwoods and flushed three times daily when in use. The heifer to be vaccinated is swung upon the table by an ingenious windlass contrivance, and then carefully vaccinated, usually upon the inner portion of the limbs, where, Dr. Alexander claims, the vesicles have the best development.

Long experience is necessary in determining the proper time for removing the lymph, the subject being placed again upon the operating table when this is done, and before the crusts are removed, the parts about them are carefully cleaned. When the lymph begins to exude, like drops of perspiration, it is gathered on small brushes and afterward applied to the ivory points, which are fastened in bunches of fifty. Afterward they are inspected at the packing establishment. Seed-points are collected in a similar manner, but from special heifers. Liquid lymph is removed by flowing it from the blade of a scalpel into vials, and is mixed with glycerin to preserve it. The points are placed in sterilizing jars and then kept in a refrigerator. When hardened they are packed and are ready for shipment.

The session opened on Tuesday morning at nine o'clock, the Society being called to order by the president, Dr. William S. Foster of Pittsburg, with nearly three hundred delegates in attendance. Prayer was offered by Rev.

Dr. Ellis N. Kremer, pastor of the Salem Reformed Church, after which addresses of welcome were delivered by Governor Hastings, City Solicitor Leitz, and W. T. Bishop. Much important business was transacted, including the appointment of a committee of three (Drs. H. S. McConnell, New Brighton; John J. Buchanan, Pittsburg, and G. B. Sweeney, Pittsburg) to take measures to prevent the bill now before Congress, providing for the abolition of vivisection, from becoming a law. The report of Secretary Atkinson showed a steady growth in membership during the past year, and the organization of medical societies in Snyder, Erie, Bedford, Tioga, and Juniata counties. The question of amending the by-laws by authorizing the publication of the transactions of the society in journal form, was laid over until the next annual meeting. Dr. Lemoyne, chairman of the committee on scientific business, announced that sixty-four papers had been secured for the meeting, all of them of practical interest and special merit.

The nominating committee, composed of one member from each county delegation, made its report on Wednesday afternoon. Pittsburg was selected as the next place of meeting, and Dr. T. D. Davis of that city, made the statement that the medical fraternity in Allegheny County will endeavor to make that the most successful convention in the Society's history. The following officers and delegates were chosen:

President, Dr. E. E. Montgomery, Philadelphia; first vice-president, Dr. C. S. Shaw, Allegheny; second vice-president, Dr. F. B. Ball, Clinton; third vice-president, Dr. T. M. Livingston, Columbia; fourth vice-president, Dr. A. C. Wentz, York; secretary, Dr. W. B. Atkinson, Philadelphia; assistant secretary, Dr. Adolph Koenig, Allegheny; treasurer, Dr. G. B. Dunmire, Philadelphia.

Members of judicial council—Dr. M. A. Rhoads, Berks; Dr. John H. Pachard, Philadelphia; Dr. John Curwen, Warren.

Committee on publication—Dr. Edward Jackson, chairman; Dr. H. A. Hare, Philadelphia; Dr. G. W. Guthrie, Luzerne; Dr. J. H. Wilson, Beaver; Dr. D. W. Nead, Dauphin.

Censors, First District—J. W. Walk, Philadelphia; S. P. Bartleson, Delaware; James Fulton, Chester.

Second District—J. B. Walker, Bucks; E. M. Green, Northampton; Wm. B. Erdman, Lehigh; Wm. L. Kutz, Carbon.

Third District—J. K. Weaver, Montgomery; W. Murray Weidman, Berks; A. F. Branson, Schuylkill.

Fourth District—T. M. Livingston, Columbia; H. McGowan, Dauphin; H. O. Qaris, Perry; William M. Guilford, Lebanon; A. M. Smith, Snyder.

Fifth District—W. F. Bacon, York; John Montgomery, Franklin; R. P. Coons, Cumberland.

Sixth District—Crawford Irwin, Blair; S. C. Stever, Huntingdon; D. M. Crawford, Juniata.

Seventh District—J. S. Troxell, Cambria; H. M. Latchey, Somerset; A. H. Hershberger, Mifflin; J. W. B. Kamerer, Westmoreland; J. T. Cess, Indiana.

Eighth District—Samuel Ayers, Allegheny; J. B. Donaldson, Washington; W. S. Throckmorton, Greene.

Ninth District—S. D. Bell, Butler; H. M. Shallenberger, Beaver; J. W. Marston, Mercer; J. F. Ritchey, Venango; R. S. Wallace, Clarion.

Tenth District—W. B. Hazeltine, Warren; A. Mulhaupt, Elk; C. A. Belmer, Jefferson; A. M. Straight, McKean; Daniel L. Davis, Erie; W. D. Hamaker, Crawford.

Eleventh District—J. L. Henderson, Clearfield; G. F. Harris, Center; G. F. Bell, Lycoming; R. B. Watson, Clinton; W. D. Vedder, Tioga.

Twelfth District—P. C. Newbaker, Montour; L. B. Kline, Columbia; W. G. Weaver, Luzerne.

Thirteenth District—S. M. Woodburn, Bradford; C. C. Halsey, Susquehanna.

Delegates to American Medical Association—J. J. Buchanan, Allegheny; W. B. Ulrick, Delaware; H. X. Baubreck, Franklin; G. B. Dunmire, Philadelphia; W. E. Sweiler, Cumberland; William Mickelsan, Venango; W. B. Logan, Cambria; W. C. Simpson, Beaver; Arthur C. Wheeler, Erie; W. S. Foster, Allegheny; H. G. McCormick, Lycoming; A. H. Habenstadt, Schuylkill; Robert G. Furst, Clinton; W. S. Wilson, Mifflin; Thomas Milliken, Greene; A. E. Snyder, Susquehanna; E. H. Coover, Dauphin; W. D. Tweedle, Carbon; J. T. Klinedinst, York; W. Murray Weidman, Berks; J. H. Wilson, Beaver; J. W. Groff, Montgomery; Alex. Craig, Lancaster; J. W. Morrow, Forest; Evan O'Neill Kane, McKean; H. G. Creitzman, C. L. Stevens, Bradford; G. G. Harman, Huntingdon; B. H. Detweiler, Lycoming; R. H. Short, Cumberland; Willis M. Baker, Warren; W. S. Brenholtz, Lancaster; W. S. Langshore, Luzerne; F. F. Davis, Venango; J. W. Sheetz, Northumberland; J. R. Care, Montgomery; E. R. Gardner, Susquehanna; John Fry, Blair; C. M. Strickler, Warren; W. R. Palmer, Elk; Laura J. Dice, York; Ellen Brown, Delaware; I. P. Klingensmith, Indiana; D. H. Bergey, Montgomery; John Montgomery, Franklin.

Delegates to Pan-American Medical Congress—J. M. Anders, Philadelphia; Ernest La Place, Philadelphia; W. T. Bacon, York; R. S. Ramsay, Franklin; A. M. Miller, Lancaster; E. M. Carson, Montgomery; T. D. Davis, Venango.

Delegates to Maryland Medical Society—C. C. Hummel, Cumberland; W. Murray Weidman, Berks.

In the scientific matter of the meeting there would seem to be as worthy of special mention, the discussions on typhoid fever, antitoxin, and alcohol; the magic-lantern lecture on certain forms of the malarial parasite, by Dr. Judson Doland of Philadelphia, the address of the president, Dr. William S. Foster of Pittsburg, on the relations existing between the profession and the public, and the address on surgery, hygiene, and obstetrics, by Drs. John J. Buchanan of Pittsburg, J. W. Moore of Easton, and Israel Cleaver of Reading.

J. C. LANGE, M.D., of Pittsburg, read a paper on

THE ANTISEPTIC FACTOR OF THE TREATMENT OF TYPHOID FEVER.

He claimed that if the antiseptic factor be properly employed, it may prevent the necessity for symptomatic

treatment. External antisepsis consists in the use of bichlorid baths and clean clothing. Orificial antisepsis includes rectal and vaginal washes of carbolic-acid solution, and mouth-washes of boracic acid and potassium chlorate. The ears also should be rendered aseptic. Intestinal antisepsis includes the use of guaiacol and iodoform, while general or constitutional antisepsis may be obtained by the administration of one-eighth grain of calomel thrice daily. No other treatment is indicated unless hemorrhage occurs, when opium will be required. Lange claimed that this course of treatment will prevent the ocurrence of secondary infection, which is commonly known as the complications of typhoid fever.

H. S. McConnell, M.D., of New Brighton, read a paper on

ELIMINATION, STARVATION, AND ANTISEPTICS IN THE TREATMENT OF TYPHOID FEVER.

He urged the importance of the starvation treatment of the disease. His paper was based on the fact that the hydrochloric acid and pepsin are greatly diminished in amount during the disease. He would feed mainly on hot water.

T. P. Simpson, M.D., of Beaver Falls, spoke of

THE USE OF ALCOHOLIC STIMULANTS IN TYPHOID FEVER.

He stated that the abuse of alcohol in this disease has done more harm than good. The routine use of alcohol is to be deprecated. Many cases of the fever require none whatever. Its excessive use induces gastric catarrh. It is useful only in the small quantity that increases the gland secretion and does not overstimulate. If employed, whisky is the best form for the purpose.

In the discussion of these papers, Dr. McCormick of Williamsport, protested against the use of opium in hemorrhage. There are remedies that will not bind the bowels that are far superior to it.

Dr. Fowler of Marionville, emphasized the fact that a certain amount of fever in the disease is curative, as suggested by Professor Hare, and this must be expected and should not be checked.

Dr. T. D. Davis of Pittsburg, remarked that typhoid fever is greatly modified by the district in which it occurs; therefore, the treatment must vary according to the type of the disease presented. Guaiacol will not act in that form of the fever in which there is no malarial element.

In reply, Dr. Lange stated that he would favor the use of morphin in hemorrhage. He objected to the use of the ice-bag, and would prefer to use heat to dilate the efferent vessels and thus control the bleeding. The action of ergot on the blood-vessels is not very definite, save on those of the cord and brain. In this disease the source of the hemorrhage, whether capillary or venous, is not known. Other remedies than morphin fail to reach the spot in time.

Dr. McConnell urged that hemorrhage is the best indication that the bowel is not aseptic, and should suggest the use of intestinal antiseptics.

Edwin Rosenthal, M.D., read a paper on

THE REDUCTION OF THE PERIOD OF INTUBATION BY SERUM TREATMENT OF LARYNGEAL DIPHTHERIA.

He stated that he wished to prove that intubation is preferable to tracheotomy. He is in the habit of having his tubes regilded after each operation, so that the patient practically has a new tube. In European cases, the reduction of the period of intubation has been from eighteen to twenty-five hours; in the American cases, the reduction is from sixty to seventy-five hours. Under the serum treatment, no alarming symptoms appeared.

Dr. W. M. Welch, of the Municipal Hospital of Philadelphia, stated that his experience was not in accord with the results of Dr. Rosenthal's paper. The only way to prove that the tube in cases of antitoxin treatment can be removed earlier than in the non-antitoxin cases, is to make the experiment by removing the tube in both classes of cases daily, and this has not been done. He has tried to remove the tube at an earlier period, but was compelled to return it. The patient who wore the tube the longest (three months) in Philadelphia, was treated with antitoxin. During this time he coughed up the tube at least seventy times, but was compelled to have it returned.

Dr. T. D. Davis of Pittsburg, claimed that much depended upon how much antitoxin was used, when it was used, and how. He has seen good results follow its employment. He has never seen the membrane persist forty-eight hours under the use of antitoxin.

Dr. Rosenthal, in reply, stated that he had used the remedy in 134 curative cases. It is necessary to know how to use it, and a good preparation must be employed. He uses Mulford's antitoxin. After the membrane disappears, he waits one day and then removes the tube. If the patient improves after the first dose, he increases the dose; thus, if the first dose was 1–1000, the second should be 2–1000, and the third 4–1000. Billings has proved that antitoxin does not alter the blood. He has never known harm to follow the use of the antitoxin.

James Fulton, M.D., of New London, read a paper on

ALCOHOLIC STIMULANTS IN THE TREATMENT OF DISEASE.

This excited an animated discussion, which was participated in by Drs. Hare, Borland, Flick, and Lemoyne. The value of the drug depends upon its judicious employment in well-selected cases; its routine use is to be deprecated, and the dose can only be determined according to the requirements of the case.

E. B. Borland, M.D., of Pittsburg, read a paper on

THE PREVENTION OF TUBERCULOSIS.

He stated that the convalescence of typhoid fever, measles, and whooping cough, offer the debility and lesions necessary for the development of tuberculosis. The alimentary tract in children is the most important avenue of tuberculous infection, and the respiratory tract in adults, dental instruments, communion cup, drinking-vessels, kissing, and the like, are important sources of infection. Fifteen per cent. of milch-cows are tuberculous, and these should be destroyed as soon as discovered; all milk should be boiled before using. Expectoration

upon floors and sidewalks should be made a misdemeanor. Cuspidors containing straw, saturated with 1–250 mercuric-chlorid solution should be placed in all public places. Latent tuberculosis needs no precautions.

DR. LEMOYNE believes that the attitude of the public upon this important question is a disgrace to civilization.

DR. E. O. KANE of Kane, regards the chief predisposing influence in the production of tuberculosis as heredity, and this hereditary tendency is largely increased by the debilitating influence of inherited syphilis, which affects from one-twentieth to one-tenth of the race.

DR. L. FLICK of Philadelphia, does not believe that there is any relationship existing between syphilis and tuberculosis. It is doubtful, he stated, whether tuberculosis can be contracted in utero, and there is no transmission of the disease from mother to child.

DR. J. M. ANDERS of Philadelphia, did not agree with the last statement. In very rare cases, the tubercle bacillus may be found in the placenta, and in the tissues of the newborn infant. There may be late hereditary tuberculosis as well as late hereditary syphilis.

DR. JAMES TYSON of Philadelphia, heartily endorsed the views advanced by Dr. Anders.

DR. E. LAPLACE of Philadelphia, stated that tuberculosis appears in various forms in different ages of the individual. It first develops as bone-tuberculosis; later as gland-tuberculosis; later still, as meningeal tuberculosis, and finally, as pulmonary tuberculosis, which is the refinement of tuberculosis. The tendency to the disease is born with the individual, but this is only the minor consideration. Reduce the condition of the body-vitality and the disease may readily be developed. This has been demonstrated upon the brown rat which will not contract the disease under normal circumstances.

J. M. ANDERS, M.D., of Philadelphia, contributed an article on

SOME THERAPEUTIC USES OF GUAIACOL.

He stated that this drug was of service in three groups of cases: (1) In certain febrile affections, acute and chronic, especially typhoid fever and the pneumonias. McCormick has used it more than eight hundred times in these diseases with excellent results. Rigors indicate the administration of too large a dose. Anders has had decided rigors with high fever follow in the two cases of this disease in which he has used guaiacol. He has, however, had excellent results in intestinal catarrh, with fermentative changes. Fever, dependent upon local inflammation, is reduced much more readily by guaiacol than that dependent upon general causes. He has used it in pulmonary tuberculosis, but has abandoned it on account of the sweating produced thereby. (2) Afebrile diseases, as myalgia and neuralgia, eleven out of twelve cases of neuralgia were successfully treated by him by guaiacol used externally. (3) Acute, subacute, and chronic rheumatism. In this class of cases guaiacol relieves pain, but does not control the inflammatory action.

E. E. MONTGOMERY, M.D., of Philadelphia, read a paper on

THE TREATMENT OF PELVIC INFLAMMATORY CONDITIONS THROUGH VAGINAL INCISIONS.

He claimed that both the vaginal and abdominal routes have their place in pelvic surgery. Pelvic inflammation may extend through the lymphatics and blood-vessels, although it commonly extends from the uterus to the tubes. The offending cause may be removed per vaginam, and even a cure result with the minimum danger to the patient. The cervix uteri is often the seat of disease, and contains rich lymphatics. The vaginal incision affords a ready means of excision of the cervix and uterus, and its appendages. Pryor has suggested an incision in the posterior fornix for retroflexion with adhesions. The latter are broken up, and the uterus held forward by a tampon placed back of the organ, while another is placed in front of the cervix in order to push this back. Baldy objects to the vaginal route as unsurgical; the wound is foul and the method objectional in every sense. Noble was not in accord with Montgomery as to the relative value of the vaginal route as compared to the abdominal. Better results follow the latter. A larger percentage of complete operations can be done from above. From above fewer complications follow, such as injuries of the ureters and vessels. He would prefer to operate from below in puerperal and old neglected cases.

JOHN J. BUCHANAN, M.D., of Pittsburg, made an address upon

SOME IMPORTANT PROGRESS IN SURGERY.

In speaking of appendicitis, he recommended the removal of the appendix in the earliest stage of the disease. Recurrent and chronic cases should be operated upon between the attacks. There are two periods in which the appendix may be safely removed, namely, at the beginning, and in the intervals. In difficult cases of fracture in which reduction is impossible, opening the wound and suturing or pegging the fragments together is advisable. Detached fragments of bone should not be removed. The process of repair is delayed in operative cases by the absolute immobility of the fragments, which hinders the formation of callus. He advised the infusion of many quarts (six or more) of saline solution directly into the veins when much loss of blood has occurred before or during operation. If required, the infusion should be repeated once or twice.

J. M. BALDY, M.D., of Philadelphia, offered a paper on

PELVIC PERITONITIS FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.

He said that in chronic disease of the tube with acute exacerbations, therapeusis will probably cure the symptoms, but not the original condition of the tube, which persists as a constant menace to the patient. A diagnosis of the diseased condition is very important in influencing the prognosis. The medical treatment of peritonitis is routine, and not influenced by the cause of the disease. At times it is important to relieve the acute symptoms before the operation is performed, and the physician should be able to do this. Rest, depletion, and relief of pain are the indications of treatment. Sexual rest is secured by a large, soft wool tampon. Depletion may be accomplished by scarification or leeching of the cervix, or better by saline purges (Epsom salt) in full doses. If this be re-

jected by the stomach, calomel may be exhibited in grain doses, repeated as required, or an enema of soapsuds will answer. In severe pain, from one-sixth to one-fourth grain of morphin should be given after free purgation. The depletion should be followed by vaginal douches twice daily. Antipyretics are not required. Noble remarked that the abdomen is apt to suppurate after counter-irritation. He would not use douching during the height of the peritonitis. Codein with hyoscyamus will relieve pain without locking up the bowels as morphin will do. Massey recommended the icebag for the pain, and Lemoyne prefers for catharsis sodium sulphate, which is a diuretic as well as a cathartic.

Carl Seiler, M.D., made remarks on

PERFORATION ON THE NASAL SEPTUM.

This, he said, is not a rare condition. Perforation of the lower or cartilaginous portion of the septum is rarely syphilitic, but usually "chronic traumatic," that is, due to the repeated removal of scabs, due to the pressure exerted by a spur or by an hypertrophied turbinated bone. A perforation here may also be caused by abscesses of Jacobson's organ, or by pressure exerted by foreign bodies, or by unskilful surgical interference. To repair the condition, a plastic operation is preferable. A hard rubber obturator has been successful in some cases. In operating, the flap is taken from the cartilage above or below, and secured by fine silk sutures.

William H. Harrison, M.D., of Harrisburg, read a paper on

THE PATHOLOGY OF THE BLOOD OF THE INSANE.

He said that a tendency to slow coagulation is a rule in insanity, although in acute cases there is noted at times an increased tendency to clot. By the condition of the blood the diet may be regulated and corrected. Harrison emphasized the value of the hematokrit, hemomelis, and other blood-examining instruments in the study of insanity. There is a marked diminution in the number of the red corpuscles in melancholia, and this is especially marked in those cases in which forced bleeding is necessary. Tyson regards this as a new field of study. He spoke of the insanity following typhoid fever, which he considered as a variety of insanity of exaltation.

G. E. Shoemaker, M.D., of Philadelphia, read a paper on

THE FIBROID UTERUS—WHEN AND HOW TO OPERATE.

He said that small tumors call for extirpation when local pressure and bleeding are present, the flow lasting over seven days. If drugs be employed, hydrastin and ergot may be given. If the tumor occupies the lower segment of the uterus in pregnancy, hysterectomy should be done in the early months. All tumors affected with suppurative inflammation, or that are growing rapidly, should be removed. Hysterectomy should not be considered in advanced phthisis. Kidney disease, however, is not a contraindication. A small tumor may be shelled out in some cases; in other cases, hysterectomy is advisable by the abdominal route, dropping the stump. Noble advised prompt operation. It is only exceptional cases that do not require operation.

Henry Beales, Jr., M.D., of Philadelphia, read a paper on

THE CLINICAL STUDY OF DIGITIN.

This is a yellow crystalline substance, quite distinct from digitalin. It is indicated in all diseases in which digitalin is required. It is pronounced by Merck to be therapeutically inert, but if given in doses up to one-half grain three or four times daily, it is useful. The drug does not irritate the digestive tract as does digitalin. Dropsies disappear almost immediately from the direct stimulating action of the drug upon the cardiac ganglia and centers governing the action of the heart. Passive cerebral hyperemia, with vertiginous symptoms indicating threatened apoplexy, may be relieved by proper doses of digitin. The power of the drug to influence capillary tonus is marked. It restores nutrition by stimulating metabolic action in the cell-structure. It is a very reliable drug.

T. D. Davis, M.D., of Pittsburg, presented a paper on

THE IRRITABLE UTERUS OF PREGNANCY.

He stated that a common symptom of the condition is pain variously located, appearing in the sacral region, in the regions of the ovaries, or in the uterus. It is often severe enough to disturb sleep. The condition is a true neurosis, and in its treatment the free use of bromids is necessary. The patient should not be permitted to confine herself to bed.

J. W. Moore, M.D., of Easton, delivered an address on

HYGIENE.

He said that one-fifth of all children, dying in the first year, perished from tuberculosis of the digestive tract, produced by the milk ingested. He believes that the theory of the contagiousness of tuberculosis founded on statistics covering a limited area of a community, and taken during a limited number of years, is not a satisfactory nor a correct one. He thinks that our knowledge of bacteria is still very meager, and is not in accord with the enthusiasm of the age.

F. S. Pearce, M.D., of Philadelphia, offered a paper in a clinical report on

THE USE OF TESTICULAR FLUID INJECTIONS,

Covering a department of the subject of organotherapy. Five hundred injections were made by him of Brown-Sequard's fluid in thirty males and ten females, suffering from locomotor ataxia, sclerotic changes in the cord, neurasthenia, and the like. From twenty to thirty minims formed the average dose injected. The frequency of the injection should be every other day. Nausea, vomiting, and diarrhea indicate an overdose. Improvement was noted in nervous diseases of a chronic nature, and consisted in a general stimulation as well as an increase in the sexual sense.

R. W. Stewart, M.D., of Pittsburg, spoke on

THE TECHNIC OF SUPRAPUBIC CYSTOTOMY.

He emphasized the danger of opening the peritoneal cavity. By the technic offered, he showed that it need not be involved. He feels for the upper border of the symphysis, and introduces the knife at this point, hugging the inner surface of the pubic bone. The operation can be done on an empty as well as on a distended bladder without any danger of involving the peritoneum.

MARY MCC. WENCK, M.D., of Sunbury, read a paper on

THE HYGIENE OF PREGNANCY.

She dwelt upon the influence of the mental condition of the mother upon the fetus. If she be irritable during her pregnancy, the child will be the same, and she claims this fact from a study of one thousand cases in her own practice. Clothing, food, exercise, and muscular tonics, including friction and massage, are important elements in the hygiene of gestation.

Other papers of note were those by Drs. B. F. Baer of Philadelphia, on "Hysterectomy for Retroperitoneal and Intra-ligamentous Uterine Fibroid Tumors;" E. W. Holmes of Philadelphia, on "Cerebral Concussion and Compression with Report of a Case of Trephining;" Ernest Laplace of Philadelphia, on the "Surgical Treatment of Insanity, with Report of Cases," in which he described his operation of craniectomy; Lewis J. Lauterbach of Philadelphia, on "Phono- and Pneumo-massage for Suppurative Disease Deafness;" Anna M. Fullerton of Philadelphia, on "Records of Work in the Woman's Hospital of Philadelphia;" and S. S. Fowler of Marionville, on "A Practical Way for the Increase of Membership." A number of papers were read by title.

CIRCULAR OF INFORMATION FROM THE NEW YORK CITY HEALTH DEPARTMENT.

THE IMPORTANCE OF BACTERIOLOGICAL EXAMINATIONS IN THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.

THE symptoms of incipient pulmonary tuberculosis are few, not marked and not uniform. They are frequently not sufficient in number or importance to attract the attention of the affected individual, and their significance is often not recognized by physicians, as there are other conditions which closely resemble incipient pulmonary tuberculosis.

Tuberculosis results from the reception into a susceptible system of tubercle bacilli. These are usually drawn in with the air inspired, and find lodgment in some portion of the respiratory passages. There they increase in number, when conditions favorable for their multiplication exist, and by their growth set up an inflammation which becomes evident in the formation of new tissues, the so-called tubercle. The inflammatory changes are usually at first very slight, and the effects entirely local. Moreover, in this early stage there is a marked tendency to a localization and restriction of the process and to an entire recovery. Many persons get well untreated. In such cases the tubercles are gradually replaced by fibrous tissue, and the bacilli die or are rendered harmless. At this time, *i.e.*, when a patient has tuberculosis, but when the disease is confined to a small, sharply circumscribed area, there is the best opportunity for successful treatment.

On the other hand, in a large percentage of the unrecognized and neglected cases, recovery does not take place, but the tubercular process extends; new tubercles form, the old ones become necrotic, and there is a coalescence of separate foci of infection, forming large areas of disease, till a great part of one or both lungs is affected. At the same time, the bacilli in their growth form poisons, which are absorbed by the system, and in the diseased or necrotic tissues other bacteria are deposited, producing the so-called mixed infection.

The disease has now assumed a far more serious aspect, is easily recognizable, and constitutes what is commonly called consumption. With few exceptions, this progresses to a fatal termination. The classical symptoms commonly assigned to early tuberculosis, *i.e.*, persistent cough with expectoration, loss of appetite and weight, hemoptysis, are really signs, in most instances, not of the incipient affection, but of the advanced disease. In the early stage, a positive diagnosis is possible only when tubercle bacilli are found in the expectoration. It is an impression commonly held that the bacilli are not found unless the disease has advanced to a point at which the signs presented on a physical examination are themselves almost conclusive. Such, however, is not the case; bacilli are not infrequently found in the expectoration when the physical signs are indicative only of a slight bronchitis, or when there are absolutely no physical signs obtainable. When signs of consolidation are present, the affected area is always considerable, and always far greater than would be inferred from the evidences obtained on examination. It is, therefore, of supreme importance that the diagnosis should be made at the earliest possible moment. The expectoration should be examined early, and if bacilli are not found immediately, should be examined repeatedly in every case of doubtful diagnosis. All cases, also, in which there is a cough, with or without expectoration, persisting for more than a few weeks, and all cases in which there is unexplained pallor, loss of appetite, languor, or loss of weight (general debility), even if the cough appears to be almost entirely absent, should be considered cases of doubtful diagnosis, and bacilli should be sought for in the expectoration.

In conclusion, emphasis should be laid upon the following clearly demonstrated facts:

First.—Incipient tuberculosis tends to recovery.

Second.—Advanced tuberculosis, with or without mixed infection, tends to a fatal issue.

Third.—In all coughs which last more than a few weeks, tuberculosis is to be suspected as a cause.

Fourth.—Successful treatment and prophylaxis demand the earliest possible diagnosis.

Fifth.—The positive diagnosis of incipient pulmonary tuberculosis properly so-called is possible only when tubercle bacilli are found in the expectoration.

Sixth.—Repeated examinations of the expectoration are frequently necessary to demonstrate the presence of the

tubercle bacilli in incipient cases of pulmonary tuberculosis.

THE USE OF MALLEIN FOR THE DIAGNOSIS OF GLANDERED HORSES. 1896.

The Health Department of New York City is prepared to furnish mallein for the diagnosis of glanders in horses. This is prepared by Nocard's method, and is furnished in vials containing a single dose of 2½ c.c.

In order that accurate results may be obtained in all cases where mallein is employed for the diagnosis of glanders, the following directions should be carefully followed.

First.—The temperature of the animal to be tested should be taken three times a day for three days previous to the injection, to determine the mean temperature.

Second.—The animals to be tested should be protected against sun, rain, or wind, as these influences may occasionally cause a rise of temperature of one or two degrees or more, independent of the action of mallein.

Third.—On the day of injection, the temperature should be taken every two hours from early morning until late at night, and during the two succeeding days it should be taken three times a day.

Fourth.—The injection should be made into the shoulder, and the skin should be previously washed thoroughly with soap and water and then with some antiseptic solution, such as lysol 2 per cent., carbolic acid 5 per cent., or bichlorid of mercury 1–1000. Care should be taken to carefully sterilize the needle of the syringe after each injection, or, better, to use separate needles, if healthy and suspected animals are being inoculated at the same time. The animals supposed to be healthy should be first injected, and the needle (if it is necessary to employ the same needle) carefully sterilized by heating to a red heat or boiling in a 1 per cent. soda solution after the injection of each suspicious animal.

Fifth.—The thermometer should be sterilized in 5 per cent. carbolic acid solution after the temperature of each horse is taken.

Following an injection of mallein in a glanderous horse, there will be a general reaction, with a rise of temperature and a local reaction. The temperature usually begins to rise three to four hours after the injection, and reaches its maximum between the tenth and twelfth hour. Sometimes, however, the hightest point is not reached until fifteen or eighteen hours after the injection. This elevation of temperature is from 1½ to 2° C., or even 4° C. above the normal mean temperature (*i.e.*, 2.7 to 7.2° F.).

In a healthy animal the rise of temperature, as a rule, amounts to only a few tenths of a degree, but it may reach a degree C. (=1.8° F.), or a little more. The rise of temperature, however, should always be considered in connection with the general and local reactions.

In a glanderous animal, after an injection of mallein, the general condition is more or less profoundly modified. The animal has a dejected appearance; the countenance is pinched and anxious; the hair is rough and on end; the flank is retracted; the respirations are rapid; there are often slight or decided rigors; the appetite is gone. These symptoms vary greatly in different animals, but are never completely lacking.

In healthy animals the general symptoms do not occur.

The local reaction around the point of injection in a glanderous animal is very marked. A few hours after the injection, there appears at this point a large, warm, tense, and very painful inflammatory swelling, and running out from the contour of this swelling will be seen hot sensitive lines of sinuous lymphatics, directed toward the neighboring lymphatic nodes. When the injection has been made aseptically, this swelling never suppurates. It, however, increases for twenty-four to thirty-six hours, and persists for several days, not disappearing entirely until after eight or ten days.

In healthy animals, at the point of injection, mallein produces only a small edematous tumor, slightly warm and sensitive, and the edema, instead of increasing, diminishes rapidly and disappears entirely in less than twenty-four hours.

It is important to remember that the phenomena produced by mallein in glanderous animals persist for a long time, the prostration continuing for from twenty-four to forty-eight hours, and the temperature remaining above normal.

If in any case the reaction obtained is only sufficient to cause the suspicion of glanders (*e.g.*, a rise of temperature of 0.8 to 1.1° C., or 1½ to 2° F.), the injection of mallein should be repeated at the end of four or five days. Healthy animals seem to acquire an immunity to mallein, while glanderous animals will still react.

Certain diseases, *e.g.*, parotitis, often cause marked oscillations of temperature. When testing horses affected with such diseases, it should be noted after the injection whether the rise of temperature is persistent, and whether the general and local reactions are present. It is always better, however, when possible, to avoid injecting mallein in horses which already show an elevation of temperature.

In acute glanders accompanied with high temperature, it sometimes happens that after an injection of mallein the temperature does not rise a full degree. In other diseases, where the temperature is already high, there will generally be no elevation at all of the temperature, and there may even be a depression.

The Health Department of New York especially requests that all veterinary surgeons who use mallein will forward full reports of the results obtained.

By order of the Board of Health.

CHARLES G. WILSON, President.

EMMONS CLARK, Secretary.

REVIEWS.

IN SICKNESS AND IN HEALTH: A Manual of Domestic Medicine and Surgery, Hygiene, Dietetics, and Nursing. Edited by J. WEST ROOSEVELT, M.D. Pp. 991. New York: D. Appleton & Co., 1896.

BUT a small part of this large and elegant volume is

written by Dr. Roosevelt. A chapter or a section is furnished respectively by Drs. Geo. W. Crary, S. T. Armstrong, A. B. Johnson, Wm. P. Northrup, F. W. Jackson, Samuel W. Lambert, Frederick Peterson, and H. A. Griffin, and by Messrs. Josiah Royce, Frederick S. Lee, and Joseph H. Seers, and by Miss Anna C. Maxwell.

Our disapproval of a manual of *Domestic* Medicine has been stated very positively in these columns. We consider the rational practice of medicine as based on a diagnosis, and we fail to understand how the layman is to be invested, by the purchase of this book, with the faculty of entire comprehension of disease. The publishers distinctly state that the book was prepared for household use and "for the unprofessional man and woman." We therefore condemn it, in large measure, while we approve very heartily of the instruction of the layman in hygiene, dietetics, nursing, and "first aid."

The chapters on Physiology, Outlines of Psychology, and Physical Training are admirable and of great value. So also are the sections on Nursing of the Sick, by Miss Maxwell, and on Nervous and Mental Diseases, by Dr. Peterson. In the latter section the questions of heredity, psychic, and somatic, of nervous stress and of alcoholic inebriety are treated in a lucid, useful, and interesting way. While giving the reader the information he ought to possess, Peterson skilfully avoids suggesting treatment, and refers him to a physician.

It is with the parts of the book that suggest and encourage self-prescribing and lay "doctoring" that we find grave fault. Fronting page 646 is an illustration of a typical case of scarlet fever and one of a typical case of measles. Of what possible use are they to laymen? Suspecting either of these diseases, the possessor of this dangerous work will naturally turn to these lithographs, and, finding that the case in hand does not show the characteristics of either picture, will decide that the child is safe. Probably contagion will go on unchecked, the mother's anxiety having been allayed; for has she not, in effect, consulted the skilful Dr. West Roosevelt by looking at the pictures? But, to do the work full justice, she has a safeguard in a sentence on page 647, where we read: "In a general way, the history of the behavior of the eruption of typical scarlet fever conforms to the old rhyme: 'One to begin, two to make show, three to make ready, and four to go!'" How lucid and helpful!

On page 668 we find this sentence: "Colchicum used during an acute attack (of gout) almost always checks it within twenty-four hours." While the policy of checking it is deprecated, nothing is said about the danger of the drug. No caution is given against its use, unless prescribed by a physician. It is simply put into the hands of the domestic dabbler in empiricism to use as he will. Better it were a knife!

The author of the section entitled "Medicines and Treatment" has a curious notion of his reader's intelligence, for he puts in quotation marks the expressions, "ride the wheel," "nervousness," "virus," and "cow-pox," yet omits the marks in the case of prophylactic, premonitory, etc. Much of his advice is dangerous, some of it is erroneous. On page 833 he says: "All diarrheas must be promptly checked." On the same page he savs "avoid night air" in malarious districts. What shall we breathe at night? The first medicine he recommends, in a long list which he considers suitable for the family chest, is morphin sulphate, in tablets of one-eighth of a grain each. "Dose for an adult, one tablet" (page 835).

The third drug he suggests is tincture of aconite, in tablets, to be labeled: "For fever. For sore throat. Dose for an adult, one tablet every half hour, until tongue and lips feel numb"! At the close of the paragraph he adds: "In long-continued and low fevers, and if exhaustion is present, as shown by a weak pulse, it will do harm." What does the laity understand by a "long-continued" or a "low" fever? On page 840 he says: "True chills and fever occurs in attacks at the same time every day, or every second (rarely every third) day." Is that error merely typographical? Speaking of the fashion of calling every ache a symptom of "malaria," and using quinin for it, he says (page 840): "Fortunately, this error, though foolish and unscientific, is usually not productive of much harm." The aurists will assure the author of the contrary fact, that this indiscriminate quinin-dosing is productive of much harm. We commend, without reservation, the author's denunciation of the continuous use of coffee, and rejoice to see that he positively forbids it to "youth, nervousness, most diseases of the heart, some forms of indigestion, and in the bilious tendency." We echo his statement that chlorate of potash should never be used by the laity. We must take exception to his exhortation to the obese, when, in spite of the simple remedies which he suggests, they remain fleshy: "Be content, for nature intended it to be so." By a parity of reasoning we should disregard malignant tumors, tubercular joints, and cross-eyes.

But the most amazing advice that we have found in the book, during a hasty reviewal, is contained in the following sentence, quoted from p. 546. Dr. Johnson has described, very superficially, acute catarrhal inflammation of the middle ear, and adds: "The treatment consists of puncture of the drumhead, in severe cases, to let out the retained secretion, and of inflation of the middle ear through the Eustachian tube." This is advice upon which the "unprofessional man and woman" are to practice "domestic surgery."

Enough has been quoted to indicate the extent to which the book transcends the bounds of a proper "manual of domestic practice," and it remains but to praise the typography, the paper, and the presswork, which are of superior style and handsome appearance.

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JULY 25, 1896.

July 18.—Assistant Surgeon L. MORRIS detached from Indian Head Proving Ground, ordered home and granted one month's leave.

July 21.—Assistant Surgeon F. C. COOK, detached from treatment at the New York Hospital and ordered to proceed home.

Medical Director G. H. COOK, detached from special duty at Philadelphia and ordered to take charge of hospital there.

Medical Director D. KINDLEBERGER, detached from duty in charge of hospital at Philadelphia, ordered home and await orders.

Medical Inspector W. G. FARWELL, ordered to special duty at Philadelphia, attending officers.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

ACUTE NASOPHARYNGEAL INFLAMMATION.

BY J. LEWIS SMITH, M.D.,
OF NEW YORK;
EMERITUS PROFESSOR OF DISEASES OF CHILDREN, BELLEVUE HOSPITAL MEDICAL COLLEGE; PHYSICIAN TO THE NEW YORK FOUNDLING ASYLUM AND TO THE INFANT ASYLUM.

THIS inflammation has increased in frequency and severity during the latter half of the nineteenth century. Changes in the frequency or type of a disease are not infrequent during cycles in its history, without any appreciable cause, but as regards the malady under consideration, its increased frequency and severity are plainly due in great measure to diphtheria and influenza, from which our ancestors suffered but little.

Acute nasopharyngeal inflammation occurs in several distinct diseases, but with such similarity that we feel justified in considering it as one disease. Rhinologists and throat specialists treat of this malady at length, both in its acute and chronic forms, but their kinds of apparatus are too cumbersome for family use, and the patients with the acute form of inflammation are, many of them, too sick to leave their beds. I shall endeavor to point out the treatment which I have found most useful in nursery cases.

Etiology.—We are able to designate several causes of nasopharyngeal inflammation. It is a common experience that sudden exposure to wet and cold when the body is scantily clad, especially if it be perspiring and overheated is followed by nasopharyngeal catarrh. "Taking cold" signifies in most instances that the person, with or without a chilly sensation, has a nasopharyngeal catarrh, characterized by a thin mucous, and afterward, perhaps, by a mucopurulent discharge from the nostrils and throat. If the opinion as regards the cause be correct, and no other inflammations, as tonsillitis, laryngitis, or bronchitis, supervene, the patient soon recovers Obviously this malady is non-microbic.

Chemical or finely divided mechanical irritants inhaled in each inspiratory act also produce nasopharyngeal catarrh. Such irritants are obviously more abundant in a large city, with its many business transactions, than in the purer air of the country. If a sunbeam be allowed to enter a darkened room, numerous floating motes will be seen in it; and if on a cloudless and quiet day an observer stand at a distance from the city limits, he will see a dense mist or cloud resting over the entire city, and no doubt composed largely of such particles as float in the sunbeam. D. F. Lincoln, M.D., in his paper on the atmosphere, in Volume xviii of Ziemssen's Cyclopedia, page 636, says: "African organisms have been found in the air of Berlin. . . The animal and vegetable kingdoms furnish a great variety of material for dust . . . Bacteria, vibriones, and monads are found very frequently . . also fragments of insects are found." Probably an equally thorough examination would disclose similar impurities in the atmosphere of American cities. Motes floating in the air may convey fragmentary animal, as well as vegetable forms, and minuter objects seen only by the microscope, as the pollen of flowers, which is the admitted cause of catarrhus æstivus, or hay-fever, may be similarly conveyed. These substances inhaled necessarily produce more or less irritation and sensitiveness, and, in some instances, catarrh of the upper air-passages.

At the present time, probably the most common cause of nasopharyngeal catarrh in this country is the influenza, which produces multiform symptoms and lesions in the different organs, but according to my observations the primary lesion of influenza, in a large proportion of cases, is the catarrh of which we are treating, so that if two or more have this catarrh simultaneously in a family, and we are able to exclude measles and pertussis, the disease is probably influenza.

Influenza is not a new malady; our ancestors mentioned it. Sir Henry Holland wrote of it sixty years ago; but as scarlet fever was regarded as a mild, even trivial, malady in the time of Sydenham, so the influenza may have attacked our ancestors more mildly and for a shorter time than it has in Europe and America in the last six or seven years.

The smallness and portability, by currents of air, of the influenza bacillus enables it to enter the system readily by the usual modes of infection. Gaining entrance into and circulating in the blood, it is enabled to reach most of the organs, and there is probably no organ which has not experienced its irritating effect. Delafield and Prudden say: "There may be conjunctivitis, otitis, naso-

pharyngeal catarrh, tonsillitis, laryngitis, bronchitis, pneumonitis, pleuritis, gastritis, enteritis, or peripheral neuritis." A recent writer in a London medical journal enumerates as many more local maladies which result from influenza, and adds: "Mental incapacity remains long, and many patients affected in middle life speak of inability for bodily and mental work that was easy previously."

Observations have accumulated sufficiently to show that the minute bacilli of influenza have the power to penetrate the accessory tubes, sinuses, and deflections pertaining to the nasopharyngeal tract to a greater extent, probably, than any other pathogenic germ. They sometimes lodge upon the turbinated bones, enter the antrum of Highmore, Eustachian tubes, the middle ear, mastoid cells, the sphenoid and ethmoid sinuses, and, in those old enough, the frontal sinuses, producing unusual inflammations, with much suffering.

Cases might be related in confirmation of this statement. Thus, a man of good constitution and habits, attended by me, had such severe pain low in his forehead that he walked hurriedly, half-dressed, from one side of the room to the other, compressing with both hands the seat of the pain and moaning at each step. When the pain began to abate, he noticed distinctly a rubbing sensation when one of his eyes was moved in its socket —a sensation like that produced by rubbing the finger over a dry pane of glass. The inference was that the specific inflammation had extended to the frontal sinuses, and from them through the thin layer of bone to the orbit.

I shall relate one other case, reported in the London *Lancet*, October 19, 1895, showing how severely the accessory sinuses and cavities of the nasopharyngeal tract suffer from inflammation produced by the influenza bacillus, which apparently, in this case, entered the system through the nares and produced a severe, painful, and protracted inflammation of the antrum of Highmore. The patient, an adult, had constant pain in the left temporal, mastoid, and occipital regions since an attack of influenza, seven years previously. There was also a purulent discharge from the left nostril. On rhinoscopic examination, the anterior part of the left turbinated bone was found to be covered with small sessile vascular polypi, and the oozing of offensive pus from the middle meatus was constant. The amount of pus varied, and at night it ran down the throat. The carious teeth were extracted, and two holes were drilled into the antrum. A pyogenic membrane, forming a very complete cast of the central cavity, was removed, along with pus and caseous matter, through the opening in the antrum. Polypi were removed and their bases cauterized. Patient was soon well.

These cases show the tendency of nasopharyngeal catarrh to extend into collateral tubes and sinuses, producing severe and dangerous inflammatory lesions, unless promptly relieved by treatment. Pathological researches are so far advanced that we can now assert that the following diseases, which are attended by nasopharyngeal inflammation, have a microbic cause: Influenza, measles, pertussis, scarlet fever, diphtheria, pseudo-diphtheria, erysipelas, gonorrhea and syphilis.

It is a fact of clinical importance, as expressed by Delafield and Prudden, that "acute inflammation of the lymph-nodes usually occurs in connection with some inflammatory process in the region from which its lymph is gathered." The lymph gathered from the inflamed nasopharyngeal surface in an acute infectious disease, like scarlet fever or diphtheria, contains not only the specific microbes of the disease, but other microbes, notably the streptococcus and staphylococcus (Booker and others) and the toxins produced by them. These, conveyed in the lymph-current, are highly irritating, causing inflammation in the lymph-ducts and nodes (adenitis), and in the adjacent connective tissue (cellulitis). If the inflammation in an infectious disease be pharyngeal, and antiseptic treatment of the fauces be not used, a swelling usually forms along one or both sides of the neck, often of the size of a hen's egg, or larger, and if the skin becomes red upon the swelling, suppuration inevitably occurs. This common complication, which might be prevented by the early and frequent use of local disinfection, increases the emaciation and weakness and renders the prognosis more doubtful.

Symptoms.—The constitutional symptoms are mild or severe, according to the gravity of the inflammation and the nature of the primary disease, if one be present. If the nasopharyngitis be active and pretty general, fever, thirst, and anorexia occur. Frontal headache is common, from the proximity of the inflammation to the head or its extension to the frontal sinuses. Sneezing is the first symptom in many cases of coryza. As the inflamed membrane swells, more or less obstruction occurs to respiration. The breathing is noisy, especially during sleep, and in severe cases the patient is compelled to breathe through the mouth. If there be much obstruction to respiration, the suffering of the patient is considerable, from the sensation of fulness in the

nostrils, the headache, and the muscular effort required in each respiratory act.

In the commencement of coryza, the patient experiences a sensation of dryness in the nostrils, which is soon succeeded by a thin discharge of serous appearance. In the course of a few hours the secretion becomes mucopurulent and thicker. If the case becomes chronic, more or less persistent thickening of the mucous membrane and incrustations are likely to occur. One of the most dangerous of the acute and nasopharyngeal inflammations is that occurring in latent diphtheria. I allude to cases in which the visible part of the nostrils and fauces does not exhibit pseudo-membrane but a catarrhal inflammation, while a pseudo-membrane probably occupies the posterior nares, a location which is very favorable for disseminating diphtheria. In such cases early and local antiseptic treatment is very important.

Treatment.—I need not remind the reader that, even with microscopic examination, it is impossible in many cases to make a clear and positive diagnosis of the nature of an attack of nasopharyngeal inflammation until one or more days have elapsed, and yet there is no other disease that requires a more early diagnosis. Inasmuch as a large proportion of cases of nasopharyngeal inflammation have a microbic origin, antiseptic sprays or inhalations should ordinarily be used every hour or half-hour from the first visit. Other appropriate remedies should be prescribed subsequently, as the nature of the attack becomes apparent. Young infants having this malady often necessarily respire through the mouth, on account of the mucopurulent secretion, thickening infiltration and incrustations of the Schneiderian surface. This impediment to normal breathing through the nostrils obviously compels respiration through the mouth, so the amount of food taken is diminished. Loss of flesh and strength inevitably result in young infants who take their food by suction, unless the nasal inflammation be soon relieved.

It is evident from the nature of nasopharyngeal inflammation that, though its causes vary, non-irritating antiseptic and germicidal applications should, as we have said above, be used from the first, and at short intervals, with an appropriate atomizer, small nasal syringe, small cotton swab, camel's-hair pencil, or other convenient instrument. Even when the cause is exposure to cold, the inhaled air is often so full of microbes that antiseptic applications are indicated.

The temperature of the room should be maintained at about 73° and the air be moist. I have employed with apparent benefit the following mixture for supplying moist air to the nursery when nasopharyngeal disease is present:

℞ Ol. Eucalypti, Acidi Carbolici aa . . . . ℥ i
Terebinthinæ . . . . ℥ viii
Misce.

In hot weather, two towels of ordinary size, wrung out of hot water, should be spread at length on a table, with one or two newspapers underneath, and two tablespoonfuls of the above mixture sprinkled over them. This should be repeated every fourth hour. If the weather be cold, the two tablespoonfuls may be added to two quarts of water in a tin, zinc, or other vessel having a broad surface, and maintained at a temperature of 170° to 190° F., which causes simmering, but not boiling. This disinfects the air that is respired and, at the same time, renders it moist. This treatment may be properly continued during the active period of the inflammation.

Common mild attacks of coryza require simple treatment. The bowels should be kept open and the body comfortably clothed. Inunction of the nostrils with carbolized vaselin is a popular remedy, and it seems to give some relief. A five per cent. solution of common salt in warm water, injected into the nostrils with a small syringe, aids materially in removing the muco-pus, which obstructs the respiration.

The following formulæ are also useful in the treatment of naso-faucial inflammations:

℞ Acidi Boraci . . . . . ℥ i
Sodii Biborat . . . . . ℥ ii
Aquæ . . . . . ℥ viii
Misce.

℞ Sodii Chloridi . . . . . ℥ i
Sodii Biborat . . . . . ℥ ii
Aquæ . . . . . Oi
Misce.

Either mixture should be used hourly, or at longer intervals, as a spray for the nostrils and fauces. But while other sprays are useful, the following formula will be found eminently satisfactory for the purposes for which sprays are employed. I have recommended it for many patients, and to physicians, who have, so far as I recollect, uniformly reported favorably.

℞ Creosoti Morson's Beechwood . gtt. ii-iii
Seiler's Tablets (alkaline and antiseptic) i-ii
Aquæ Distillat . . . . ℥ iii
Misce.

With a simple hand atomizer spray nostrils and throat every hour to two or three hours, compressing the bulb from four to six times, and inhaling deeply the inspired vapor.

The following is a similar formula, and might in some instances be substituted for Seiler's solution:

℞ Creosoti Morson's Beechwood . gtt. ii–iii
Dobell's Solution . . . ʒi
Aquæ Puræ . . . . ʒiii
Misce.

Of course the measures for local use which we have recommended, can be safely employed by families before or between the physician's visits. All are aware, as we have stated elsewhere, that internal treatment also may be required, according to the nature of the nasopharyngeal catarrh and the exigencies which may arise.

SYDENHAM'S CHOREA; AN ANALYTICAL STUDY OF 125 CASES.

By WILLIAM BROADDUS PRITCHARD, M.D.,
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CHOREA is a very old and familiar affection. It has been recognized as an entity almost since the days of prehistoric medicine. It has attracted the attention, as a field for study, of many medical men eminently qualified in clinical and pathological research, and yet there are several unsettled problems which remain to confuse our conception of the pathogenesis, and render uncertain the results from treatment. Our knowledge of the pathology involved is most indefinite and unsatisfactory. No two autopsies reflect the same findings, although minute punctiform hemorrhages, or minute emboli of the cortical vessels, with more or less congestion, have been noted with suggestive frequency by different observers. A theory of microbic origin has also its adherents, though facts are few. The etiology and pathogenesis will be easily deducible, reasoning from effect to cause; when once the pathology is established, and a more rational basis of treatment will also be attained as a correlated result. Clinical facts often indicate or suggest a line of pathological investigation, sometimes with happy results. Analytical studies of a series of cases, made with this object, are, therefore, often of much value.

During the years 1893–95, I saw in private practice and at my clinic at the New York Polyclinic, 125 cases of simple or Sydenham's chorea. In nearly all of these cases full record was made of the facts, as far as could be determined, of heredity, age at onset of first attack, exciting cause, month of onset both as to primary and relapsing attacks, number of relapses, distribution of movements, mental condition, presence or absence of personal rheumatism or heart disease, and various special symptomatic conditions noted in individual cases. Of these 125 patients, 45 were males, 80 were females. The average age at the time of observation was 9¾ years, the youngest patient aged two years, the oldest (relapsing case), twenty-eight years old. Including parental phthisis, about one-fourth showed distinct lineal neurotic heredity as follows: Epilepsy 3, chorea 15, migraine 5, phthisis 5, insanity 1, total, 29. One patient, a girl, aged eight years, presented a history illustrating the most intense neurotic saturation in a family I have ever noted. Her father suffered from migraine, the mother was an epileptic, dying from an accident, a sister had chorea, a brother some form of paralysis, which I concluded from the description to have been poliomyelitis, and a maternal aunt died insane.

The exciting cause could not be determined in the majority of instances, but the number of cases in which the first symptoms of chorea quickly followed some one of the various infectious diseases of childhood, and particularly scarlet fever, was remarkable. Three followed grip, 1 the mumps, 5 measles, and 20 scarlet fever. In 4 cases there was a clear history of trauma involving injury to the head or concussion. Fright, or anger, or other emotional disturbance, was ascribed as the cause in 17 cases, and in one of my private patients, a young girl of thirteen, the symptoms (first attack) developed abruptly while in the theater, from the sudden, complete, accidental darkness, which resulted from some defect in the lighting apparatus. Her attack lasted seven weeks and was quite severe, the child having to be fed by an attendant for a time on account of the excessive violence of the ataxic movements. In 7 cases the disease manifested itself at the period of puberty, and no other cause was assignable, but it is to be noted that in three of these cases there was a neurotic heredity. Thirty cases began in the spring months (March 7, April 8, May 10, spring 5); 30 in the summer (June 8, July 10, August 4, summer 8); 5 in the fall (September 2, October 1, November 1, fall 1); and 12 during the winter months (December 3, January 3, February 6). In the remaining 48 cases the month or season could not be positively determined.

The distribution of the choreic movements was carefully noted in 101 cases, being limited to the left side in 19, to the right in 18, and involving both sides, with but slight differences in degree, in 64. As a rule, only one side was affected in patients with primary attacks, while the more frequent the relapses the greater the tendency to

general involvement. The speech and movements of the tongue were affected in 14 patients. The coexistence of heart disease and a history of rheumatism were points of special inquiry. In many instances suspected cardiac lesions were submitted to Professor Page of the department of diseases of the heart and lungs, for opinion. In no case was a history of vague limb, or muscle, or joint, or "growing" pains, accepted as rheumatic, only the frank, explosive manifestations of this disease being considered. Nine patients gave histories of well-defined attacks of rheumatism, and in one patient, a girl aged eight years, there was a history of three such attacks, chorea being present concurrently in one of them. Of those with well-marked evidences of cardiac disturbance, 11 presented conditions of organic disease, 3 of these cases of aortic regurgitation. In 8 cases there was more or less marked disturbance of the heart's function and rhythm, but no positively demonstrable lesion. All of these 8 cases exhibited a pulse-rate above the normal. The mental condition was noted in all cases, and in 75 no variation from the normal average in intelligence and psychical equilibrium for age was apparent. In 34 cases the mental state was far above the average, these children being of the precocious type, excelling in their studies and in some instances evidencing a high order of psychical activity and development. Only 7 were noted as "dull," and only 4 as exhibiting mental states which would justify the application of the term demented, and even here, in 2 cases, the term was open to criticism in its strictly technical significance. Other mental perversions noted were extreme irritability in 3, hysteria in 1, and rather intense melancholy depression in 1, a girl of fourteen. Most of these cases presenting variations from the normal, in the mental state were patients in whom one or more relapses had occurred.

Of the entire number of cases, 125 in all, there was a history of at least two attacks in 54, three attacks in 17, and four or more in 6 patients. Among the anomalous or unusual symptoms noted was optic atrophy, distinctly present in one case, and a mild optic neuritis in another. Insufficiency of the eye muscles, esophoria, astigmatism, and other minor anomalies of the visual apparatus were noted in several cases. Strabismus was present in decided form in 4 patients. A history of eneuresis was volunteered in 4 cases and was probably present in others, but not noted, as no special inquiry was made with regard to it. Anemia, more or less profound in degree, was exceedingly common. Paralysis of the extremities was not observed in a single case, even in minor degree, although several patients, through anemic exhaustion, or the extreme ataxic jerkings of the limbs, were rendered helpless. Atrophy of the muscles, observed in three cases by Rondot,[1] I have never seen present in Sydenham's chorea.

A recapitulation and comparison with the observations of others may not be without interest and value. As regards sex, I found the proportion to be about two females to one male (45 males, 80 females). All statistics show a peculiar susceptibility in females as compared with males. Wharton and Vickery,[2] in a study of 76 cases, found the ratio to be 2 males to 3 females. They quote Broadbent, however, as finding the ratio to be 2 females to 1 male, and Gowers and Goodall give the proportion as 5 to 2. Koch,[3] in a total of 267 cases, found 100 males to 167 females. In my series of 125 cases I found a distinct neurotic lineal heredity in nearly twenty-five per cent., a fact of rather remarkable interest, in view of Koch's statement that heredity is not significant. Koch's observations, with reference to the etiological relationship of the seasons, are no less peculiar and at variance with nearly all other observers. He finds the disease most prevalent in winter, and states that twenty-two per cent. of his cases occurred in December. Morris J. Lewis,[4] who made a special study of the effects of climatic conditions and the influence of the seasons in the development of chorea, found in an analysis of 1383 cases, that the disease developed in the spring in 491, summer 382, autumn 204, and winter 306. My own observations are fairly in accord with these figures, and are further supported by Dana,[5] who found the largest number of cases occurring during the spring months.

The relationship of chorea and rheumatism, and of chorea and heart disease, is a subject of much importance in its bearings upon pathogenesis and treatment. While the exact relationship is still a matter of some doubt, there can be no question but that a certain etiological kinship does exist between the three, although chorea may unquestionably occur without any antecedent or personal rheumatism or cardiac disease. Sir Dyce Duckworth apparently believed to the contrary, for he is quoted by Sturgis[6] as teaching that rheumatism holds first place in the etiology of chorea, the latter being simply a manifestation of the rheumatic habit. Sturgis himself reports a rheu-

[1] *Gazette. Hebdom. du Bordeaux*, June, 1895.
[2] *American Journal of the Medical Sciences*, May, 1892.
[3] *Archiv f. klin. Med.*, Bd. 40, H. 506.
[4] *American Journal of the Medical Sciences*, September, 1892.
[5] *Archives of Pediatrics*, April, 1890.
[6] *American Journal of the Medical Sciences*, December, 1891.

matic element in twenty-five per cent. of the 100 cases analyzed by him. Dujardin Beaumetz[1] recognizes only two etiological factors in chorea, rheumatism and hysteria. (In only one of my cases was there any hysterical element. Racial peculiarities might, perhaps, partially explain this marked discrepancy, but it is too great to be accounted for solely on this ground.) Koch, in the series referred to, found a history of rheumatism in eighteen per cent., and of valvular heart disease in fourteen per cent. Walton and Vickery found in 36 cases no possible rheumatic or cardiac element of disease, but in the total of 76 cases, organic heart disease was found to the extent of 27.63 per cent., and rheumatism 23.68 per cent. Dana found a history of parental rheumatism in eight per cent., and of personal rheumatism in five per cent. in 130 cases. My own observations are more nearly in accord with Dana's figures, as I found a clear history of personal rheumatism in only about seven per cent., while, including both the organic and functional cases, I found decided disturbance of the heart's action in 19 cases, or about fifteen per cent.

The following conclusions seem legitimate:

1. Chorea is more common in females, in the proportion of two to one, than in males.

2. The disease is more prevalent in the spring months than at any other season of the year.

3. A neurotic heredity is of unquestionable importance as an etiological factor.

4. The disease seems to be especially liable to development in the unusually intelligent and precocious. Mental deterioration or perversion occurs only as a result (as a rule) of relapses of the disease.

5. Chorea may occur independently of either heart disease or rheumatism, but the frequency with which the three are found to be present in association is more than a coincidence. Further study is necessary before any positive conclusion can be reached as to the exact significance of this relationship.

[1] *Bull. Genl. de Therapeut.*, March 15, 1894, p. 103.
[2] Barwell, "Diseases of the Joints," 1860 and 1881.

SYSTEMIC INFECTION FROM GONORRHEA, WITH THE REPORT OF A FATAL CASE.

BY J. M. ROBINSON, M.D.,
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CONSIDERABLE evidence is gradually accumulating concerning the liability to general constitutional infection from gonorrhea. So long ago as 1860, Barwell[2] enunciated the view that so-called gonorrheal rheumatism was a form or manifestation of pyemia, and this idea has continually gained credence. For a long time, however, arthritis was the only extragenital complication of gonorrhea which appears to have received attention. Finally it was observed that iritis and capsulitis occasionally accompanied the arthritic complication, and then it was suspected that any of the serous membranes might become inflamed through the agency of the absorbed toxic products of a specific urethritis.

In 1876 a French writer, Marty,[1] after reviewing several cases of gonorrheal synovitis, which were accompanied by inflammation of other serous membranes, concluded that "Gonorrhea may be complicated with inflammation of all of the serous membranes, and may act in a direct way on each of them. Rheumatism is by no means a necessary middle condition between the specific lesion and the lesion of the serous membrane, although the coexistence of the two complications is most frequent."

The term "rheumatism" in this connection is unfortunate and misleading, for the process is essentially a septic one. During an attack of specific urethritis, gonococci or other pyogenic germs associated with them or their ptomains may enter the circulation. Then by far the most common clinical manifestation of such an occurrence is an inflammation of the serous lining of one or more of the larger joints. But recent clinical and bacteriological evidence has shown that Marty was quite correct in assuming that other serous membranes might be attacked by the circulating poisons. On more rare occasions it seems probable that gonorrhea may give rise to a general septicemia, although some secondary local lesion will usually be found to predominate at the autopsy, if the case terminate fatally.

Gluzinski of Vienna[2] collected thirty-one cases of acute peri- and endocarditis which supervened in the course of gonorrhea. Not all of these were accompanied by an involvement of the joints, and some assumed the character of an acute infectious disease—as ulcerative endocarditis.

McDonnell[3] collected from the case-books of the Montreal General Hospital twenty-seven cases of gonorrheal arthritis, of which six were said to have shown signs of cardiac disease.

See[4] mentions two cases of gonorrheal pleurisy.

Dr. Panus[5] has reported an instance in which gonorrhea was followed by fever, intense headache, and ocular symptoms, which ended in optic

[1] *Archives Générales de Med.*, 1876 (quoted by McDonnell).
[2] *British Medical Journal*, 1889.
[3] *Amer. Jour. Med. Sciences*, 1891.
[4] Ashhurst, "Principles and Practice of Surgery," 1890.
[5] *La Semaine Médicale*, 1890.

atrophy. He ascribed the trouble to meningitis of gonorrheal origin.

Leyden[1] has reported a fatal case of meningomyelitis, which apparently originated from an extensive gonorrheal cystitis.

The assumption that such cases might be merely coincidental has been set aside by the discovery of gonococci at the seat of the secondary lesion. In the *American Journal of Medical Science*, July, 1895, is an abstract of a paper recounting a case of specific epididymitis, which was followed by arthritis and fatal ulcerative endocarditis. Microscopic examination of fragments of the cardiac valves disclosed gonococci. Two similar cases have been noted in the MEDICAL NEWS.[2]

Many instances have been reported where the specific cocci have been found in the pus of complicating arthritis.[3] And, finally gonococci have been found in the blood of patients suffering from involvement of the joints.[4] It is very probable that the infection is usually of a mixed character.

In the text-books on genito-urinary diseases which I have at hand, such as Keyes, Bumstead and Taylor, and Durkee, little or no reference is made to the possibility of a general infection following gonorrhea. But the finding of the specific germs in various parts of the body suggests that such a result may occasionally be expected; and the very fact of the occurrence and frequency of gonorrheal bubo tends to show how often the poisons of "clap" start out to invade the system, and are only prevented from so doing, in the ordinary case, by the angry intervention of the inguinal glands. Often it is observed that specific urethritis is attended by a mild fever, which is undoubtedly due to a slight septicemia. Very recently I have had an instance of this kind in my own practice. A young man began to complain of headache and chills on the third day of the urethral discharge. His temperature, when first taken was 103°, and after this a mild pyrexia continued for nine days. The patient's family assumed that he had typhoid fever, an idea which, in deference to the wishes of the sufferer, I did not attempt to dispel, although there appeared no symptoms which could be attributed to any other origin than the inflamed urethra. There were also no signs of arthritis, pericarditis, or other complication.

I take it that such a condition as this might better bear the title of "gonorrheal fever," since it was distinctly a septic affair, than to lurk under the name of "urethral fever," which still carries with it the vague idea of some obscure nervous influence.

If a thermometer be regularly employed when patients suffering from the first effects of specific urethritis present themselves for examination, it will usually be found that there is a slight elevation of temperature. This may not be more than 100°, but it serves to indicate a slight tendency toward septic absorption. At the same time, there will occasionally be heard the complaint of headache and a feeling of malaise. Such symptoms pass rapidly away; it is in the later stages of the disease that an elevation of temperature is of more consequence, when it usually precedes or attends the various local complications of an inflammatory character. It is at this time, too, that the distant serous membranes are most likely to be attacked.

Without having an opportunity to make an extensive examination of the literature on the subject, I have noted the reports of six fatal cases of gonorrheal origin—three from arthritis and endocarditis, and one from meningitis have been herein mentioned. Another death from gonorrheal endocarditis has been reported by DeFleury,[1] and recently, in the MEDICAL NEWS, Dr. Hawkins[2] has detailed a fatal case of gonorrheal rheumatism. It was unfortunate in this instance that the diagnosis was not confirmed by an autopsy, nor does it appear that a bacteriological examination completed the case.[3]

To this brief list I shall now add the following:

A. C., aged thirty-two, employed as a hotel clerk, was taken suddenly ill in the evening after attending to his usual work during the day. When I called to see the patient, on the following morning, the proprietor of the place told me that the man was a stranger in the city and had worked for him about six weeks, during which time he had attended strictly to business and had appeared to be in good health.

On first appearance, the case seemed like the onset of some acute infectious disease. The patient stated that on the previous day he had suffered slightly from headache, which increased toward evening. About midnight he had a severe chill, which was several times repeated. He had vomited freely, and complained of intense headache and "pain all over." His temperature was 105°; pulse 120; face deeply flushed, and conjunctivæ injected.

Inquiries regarding his family and personal history gave negative results. He had had the

[1] Editorial, MEDICAL NEWS, June 28, 1893.
[2] MEDICAL NEWS, Aug. 19, 1893, p. 217, and Dec. 22, 1894, p. 697.
[3] Senn, "Surgical Bacteriology," 1890.
[4] *Boston Med. and Surg. Journ.*, 1894.

[1] *Jour. med. de Bordeaux*, 1884.
[2] MEDICAL NEWS, June 13, 1896.
[3] Reference is chiefly made in this article to gonorrhea in the male subject. Severe cases of gonorrheal salpingitis, peritonitis, etc., are, of course, more common.

usual diseases of childhood; denied syphilis; acknowledged occasional alcoholic excesses; had never suffered from rheumatism in any form, and had recently been subjected to no unusual exposure or fatigue. His general physique was excellent; his weight about 170 pounds. A specimen of urine obtained at this time was normal in specific gravity and color, but contained a slight trace of albumin and a few pus-cells; the urethra had probably been washed by a more copious urination shortly before this was obtained.

During the first day of his illness, he developed a low type of delirium, from which he could, however, be easily aroused. When left alone he talked excitedly to himself, and was very restless, but made no attempt to leave his bed. This mental condition continued until coma supervened a few hours before his death, which occurred within four days of the time when he was first taken ill.

At times he complained of severe pain, but had difficulty in locating it; there seemed to exist a condition of general hyperesthesia, and he complained of soreness in various parts of the body. Pressure over the toes, ankle, and knee-joints elicited pain, but only on the last day of his illness was swelling detected. For the most part of the time he moved himself without difficulty, and in the earlier part of his attack there was no indication that the joints were especially involved. The temperature was irregular, varying from 99 to 105°; sweating was not marked; there were no pulmonary signs. The pupils remained contracted throughout; the expression was anxious rather than drowsy. Tongue red and glazed. The vomited matter, which at first was made up of bile-stained fluid, later consisted of mucus flecked with blood. There were no abdominal symptoms; the bowels were moved by calomel and an enema. By the third day, the entire body was dotted with purpuric spots, and it became evident that the patient was suffering from intense blood-poisoning, although no source of infection could be detected. The pulse was rapid and of high tension; for the first three days, the heart-sounds were clear and distinct, but on the fourth day became muffled; there were no murmurs.

After the purpuric eruption appeared, the patient grew rapidly weaker, and the delirium and jactitation were followed by coma and evidences of general nervous exhaustion.

Several diagnoses were suggested but none of them seemed quite satisfactory. The occurrence of intense headache and contracted pupils, with vomiting and general hyperesthesia, favored cerebrospinal fever. Since purpura and joint symptoms occasionally occur in this disease, such a view of the case seemed plausible. The severe onset and protean character determined against acute articular rheumatism; the involvement of the joints seemed to be secondary; there was besides no sweating, nor did the one specimen of urine obtained, reveal an excess of urates or uric acid. And finally, the attack had assumed a resemblance to the few reported cases of acute purpura hemorrhagica. The blood in the vomited mucus showed that small hemorrhages had taken place in the gastric mucous membrane. Since no definite diagnosis could be arrived at, the case was treated as one of malignant septicemia; the autopsy showed that this conclusion was well founded, and the most probable origin of the blood sepsis was revealed. The following are the notes taken at the *post-mortem* table, condensed:

Body of man about thirty years old; height five feet ten inches; weight about 165 pounds. *Rigor mortis* in extremities (thirty hours after death). Purpuric spots scattered over entire body; left knee-joint seems to be slightly swollen; inguinal lymphatics can be felt slightly enlarged. On incision, the blood is found to be dark and fluid. No hemorrhages can be discovered in the muscular or areolar tissue. Pleuræ normal. Hypostatic congestion of both lungs. Pericardial fluid a little cloudy; quantity about two ounces; on the visceral layers of the pericardium is a white patch about the size of a dime; along the left coronary artery are a dozen punctate hemorrhages; there are no other signs of pericarditis. Cardiac muscle flabby and somewhat grayish; "chicken fat" clots; valves normal; two minute hemorrhages are found in the aortic lining, an inch from the valve. Stomach empty; vessels of mucous membrane deeply congested, and ecchymomata cover the posterior surface, but no free blood is found in the stomach or intestines, the latter appear to be in normal condition. Mesenteric glands slightly enlarged. Pancreas and liver normal. Spleen much enlarged, soft, and friable. On the capsule of the left kidney is a small blood clot, but otherwise these organs are normal in appearance. Ureters and bladder normal.

The cerebral and spinal meninges are deeply congested, but there are no inflammatory changes. No purulent foci found in any of the viscera. The synovial membranes of both knee-joints are bathed in their pus, but the quantity is not sufficient to flow from the joints when opened. A similar condition is found in the metatarso-phalangeal joints of the great toes. A minute quantity of pus is also found in three out of six of the other toe-joints which are opened. The joints of the upper extremity are free from pus, but the synovial fluid of the elbows is cloudy.

After the death of the patient, among his effects was found a penis syringe, which showed signs of recent use, and also a broken package of absorbent cotton. Upon finding this clue, I opened the urethra and found behind a stricture of large caliber, in the middle of the spongy portion, a

drop or two of thin pus; from this point, evidences of inflammation were found as far back as the prostate gland. Cowper's glands were enlarged, and the duct of one was dilated and could be easily noted. The patient had been suffering from chronic posterior urethritis. Gonococci were present in the urethral pus. The body was, unfortunately, removed before I had an opportunity to return for a specimen of the pus in the joints, but I am quite well satisfied that the urethra was the original source of the infection. Had the pyarthrosis been primary symptoms referable to the joints, would have manifested themselves earlier. Certain it is, that a complete *post-mortem* examination in this case prevented the use of the word *idiopathic*, which has no proper place in the study of septic and pyemic diseases.

In concluding this report, I call to mind those lighthearted devotees of the bagnio, who scoff at a gonorrhea, and would as soon be so afflicted as suffer with a "cold," but then a man may "catch *his death* o' cold," and so too, as I have here shown, may he die of the "clap."

CLINICAL LECTURE.

SPINAL PARALYSIS.[1]

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An Italian laborer, aged forty, was injured two months ago by a tree falling across the small of his back. The accident did not disable him immediately, but within a few hours, absolute paralysis of the lower extremities set in, accompanied with anesthesia and with loss of control over the bladder and bowels. Subsequently, the paralysis was succeeded by paresis, and the muscular sense was so far restored that deep manipulation became perceptible.

Upon entering the hospital a few days ago, the patient complained of pain in the lumbar region and, on examination, posterior curvature was found. On questioning the patient, we learned that the pain ran down his legs, and that sensation in the lower extremities was still somewhat impaired. He controlled the urine and feces, and could walk fairly well.

It is a very important point to determine whether the patient could walk immediately after the accident or not. In this particular, there is a decrepancy between the history and the present statement of the patient. He says that he lay on the ground for about an hour after the accident, and was then lifted into a wagon and taken out of the woods. There was no involuntary evacuation of the bladder or bowels at that time, but the absence of these symptoms is not significant, since there may have been no pressure to call for a passage. The man was carried in a wagon some miles to Springfield, where he arrived so cold and paralyzed that his friends at first thought he was dead. The truth or falsity of our understanding of the facts of the case will determine the correctness or incorrectness of our diagnosis.

The patient can now walk, as you see, and he crosses his legs and flexes them without trouble, though there may be some loss of power. He feels the prick of a pin in both legs, but he says it does not hurt, though I make quite a vigorous thrust. The same test applied to the arms elicits even less complaint of pain, so that we must admit that any apparent diminution of sensibility at present is peculiar to the individual. It not infrequently happens that men, accustomed to rough work and exposure, are incapable of appreciating as painful, slight injuries that would be intensely so to those of higher nervous organization. The patellar reflex is not quite so strong in the right leg as in the left, but there is no conspicious deviation from the normal. Although the patient walks fairly well so far as mere ability to move is concerned, his gait is a little staggering and heavy, and he complains that the effort causes pain in the small of his back and running down the right leg. It hurts him when I press down on his shoulders. This fact should at once lead to the investigation of the condition of the spine, to determine if there is any yielding of the bony support that allows the pressure to be communicated to the cord. There is nothing very striking about the appearance of the spine, but there is a prominence of the lower dorsal and the upper one or two lumbar vertebral spinous processes. Pressure against the spine straightens the deformity somewhat, but it does not wholly disappear. The pain on downward pressure is located at this protuberance.

With a history as vague and contradictory as this, we can do little more than analyze the symptoms and statements of the patient and get at an approximate diagnosis. In the first place, we may be certain that the man received a severe injury in the region of the lower dorsal and upper lumbar vertebræ. As a result of the blow, the man was soon, though apparently not immediately, paralyzed. This paralysis may have been due to shock, for, in many spine and head injuries, the spinal or cerebral center is stunned so that a marked paralysis results, but disappears so soon that we may be sure that no absolute lesion of the centers was sustained. I have known such cases in which, merely as the result of shock, there was such profound paralysis that urine and feces were discharged at once. Shock of this sort, however—that is concussion—does not last long, while concussion of the cord is of much shorter duration than concussion of the brain. These cases of concussion of the cord have attained considerable notoriety as the results of railroad accidents. Serious chronic spinal lesions are often alleged to follow railroad injury, but these cases are mainly hoaxes, and recovery ensues soon after the obtaining of a verdict. I have no doubt, however, that shock of the spinal cord can and does occur.

The ride in the wagon would be sufficient to aggravate the symptoms of paralysis and shock. I do not question that the patient really was paralyzed, for he says that the lower part of his body and his legs seemed to be dead. What was probably the nature of the lesion? Strike

[1] Clinic at Buffalo General Hospital.

where you will, a blow to the living body, if it be sufficiently severe, is followed by the pouring out of serum, which becomes mixed with blood-cells if the injury is sufficient to rupture some minute vessel, and this may amount to an actual hemorrhage if the violence is great. The outpouring is not necessarily in the exact location of the blow upon the skin, but it must be in the line of violence to the tissues. In the present case, we have to think of an exudate occurring somewhere in the neighborhood of the spinal cord. So far as the paralytic symptoms are concerned, we may ignore the injury done to the bony parts and the ligaments outside the spinal canal. All such injuries would be diagnosed and treated on the general principles of surgical practice, but, except for concomitant shock, they would not be attended by any nervous symptoms. It is not possible at this late date to determine exactly what injury was done to the outside structures, but it appears from the contour of the spinal column that there may have been a fracture of the vertebræ. A displacement of the bony arch about the spinal cord would suffice for the establishment of a paralysis, but it would be relieved by the reduction of the dislocation and, on the other hand, there would not be recovery unless the deformity was corrected. The history of this case is entirely contrary to any such hypothesis. The paralysis did not come on instantly as if it were caused by the displacement of bone, it was not suddenly relieved by any manipulation, the recovery of function has not depended upon the reduction of fractured and displaced bone, but has progressed gradually. Moreover, the deformity persists, so that if there were a fracture of a vertebra at the time of the accident, it was not directly connected with the paralysis. Coincident with whatever damage to the vertebræ may be assumed, there was the outpouring into the spinal canal of some exudate, whose gradual but quite rapid accumulation led to a paralysis, which rapidly deepened, but did not occur at the moment of injury. The intensity and duration of a paralysis beginning in this way, depends on the size and location of the blood-clot and the rapidity of its resorption. As to the question between blood and serum, a serous exudate would be quite rapidly absorbed, while a blood-clot would probably first go on to organization and then be gradually, and perhaps, incompletely, reabsorbed. I learn that the man has never been any better since the injury than he is at present, so that the history points quite positively to the existence of a blood-clot. The condition is improving, and that means that the blood-clot is diminishing so that the prognosis is fairly good. While a massive clot is scarcely ever completely absorbed, a mixed hemorrhagic and serous exudation would account for the symptoms of the case and for the improvement, and would allow the hope of perfect recovery, ultimately.

A point to be considered more carefully, is the deviation of the spine. Is it old or new? Is it progressive, from which we would anticipate more serious disease which might later make actual bony pressure on the cord, or is it on the wane? I should rather not express a positive opinion on these questions until the opportunity had been afforded to watch the case for some time. I believe, however, that, if there were an injury to the anterior portion of the spine, with serious lesion of the bodies of the vertebræ, the patient would throw his weight backward and rest his hands on his hips, so as to relieve the vertebræ of pressure as much as possible. On the other hand, if there were inflammation of the vertebral arches, he would walk, leaning forward so as to throw the weight of the body onto the sound anterior part of the vertebræ. As a matter of fact, the gait of the patient, though unsteady and assisted by the holding of the hands on the hips, is not characteristic of either form of vertebral disease. I think that the probability is in favor of the non-existence of serious disorganization of either arch or body, but of some little irritation posteriorly to the spinal canal. The evidence in favor of some displacement at the time of the accident, is confirmatory of this view of the case.

The treatment of the case deserves some attention. I think that if I had seen the man soon after the injury, I should have kept him flat on his back, so as to avoid all movement of the spine. After the first shock had subsided, I should have given him pretty active saline cathartics to deplete the system and reduce arterial tension, and thus tend to prevent the further outpouring of blood in the spinal canal. Later, there would have been an indication for the administration of iodids, in order to promote the absorption of whatever exudate had been thrown out. Extension of the spine to prevent deformity, if there really were fracture, would have been indicated and, at any rate, it would have served to keep the spine stationary. At first, the most appropriate method would have been by elevating the foot of the bed and applying counter-extension. I should still suggest potassium iodid to aid in the absorption of the exudate and, as long as pressure on the shoulders causes pain, I should advise that he be kept in bed. If the tenderness to pressure on the shoulders persisted after the time when the man should be walking about for the sake of necessary exercise, I should support the spine by means of a plaster jacket. I should, however, first test the usefulness of the jacket by extending the man in the perpendicular direction in order to learn if the projection of the spine was diminished. It is not uncommon to see men with such backs who have never met with any accident, and it may be that we are over-anxious about this man's spine. Even the skin over the projection is somewhat callous, and it may be that he has simply become bent from hard labor. The case, however, demands great care, and it is better to waste our time in watching a condition which has preceded the injury than to allow a recent deformity to become aggravated, for the development of a positive curvature of the spinal column would tend to increase the man's paresis, and would be very serious. I have nothing further to say regarding treatment, except that the diet should be liberal, and that various symptoms may arise requiring attention, which cannot be anticipated in detail.

A Charter Revoked.—The Illinois courts have received such evidences of fraud in the management of the Illinois Health University, located at Chicago, that they have decided to revoke its charter.

CLINICAL MEMORANDA.

REPORT OF A CASE OF IMPERFECT CLOSURE OF THE AURICULAR AND VENTRICULAR SEPTA, IN A MAN DEAD AT THE AGE OF FIFTY YEARS FROM ABSCESS OF THE BRAIN.[1]

BY FREDERICK A. PACKARD, M.D.,
OF PHILADELPHIA.

THE patient from whom this specimen was removed was admitted to the Episcopal Hospital on July 6, 1893.

He was an American, a sailor by occupation, and was engaged in his ordinary work at the onset of his last illness. His family history contains nothing of interest. He was always healthy, his only illness having been an attack of measles. He denied syphilitic infection, but has had gonorrhea. He remembers no injury to his head.

His last illness began suddenly, ten days before admission to the Hospital. He suddenly partially lost consciousness, and remained in a semi-conscious condition for about ten minutes. His friends told him later that while in this condition he had localized convulsion, involving the muscles of the right eye, the right side of the face, right side of neck, back, and chest, the right arm, and to a less extent of the right leg. He said that after regaining consciousness he had a numb feeling in the whole right side of the body. He was, however, able to walk, to raise the right arm, and to talk without difficulty. Four days later, he had another attack of the same character, in which he was totally unconscious. After this attack the right side felt very weak, though he thinks sensation was perfectly preserved. The arm and leg continued useful.

His condition on admission may be summarized as follows: He was a powerfully built, well-nourished man. Face bronzed, but more dusky than would be the case from exposure to the sun alone. Gums darker than normal. Lips very dark and apparently congested. Pupils equal and normal; no ptosis or other sign of interference with muscles of eye or lids. Face symmetrical. Tongue coated, but protruded in median line. Right arm and leg can be moved, but are distinctly feeble. Can talk and swallow perfectly. No lesion of ears. Examination of the heart showed slight enlargement (direction of enlargement not stated in the copy of the notes in my possession) and a blowing systolic murmur, most plainly heard at the apex, but also present distinctly over the body of the heart. The lungs were negative, save for the presence of a few subcrepitant râles on both sides posteriorly. Examination of the abdomen was negative. All of the tendon reflexes were found to be normal, save for slight increase of the knee-jerk and the presence of ankle-clonus on the right side. The temperature was normal, the pulse 80, respirations 24. Urine normal. The late Dr. Heyl, at that time ophthalmologist to the Hospital, kindly examined the eyes for me and reported: O. D., inner margin of disk obscured; tortuosity of retinal vessels; O. S., vessels tortuous; disk normal. There was no glandular enlargement, the teeth were normal, and there were no skin lesions, save for a few blotchy areas on the upper third of the legs.

He was put to bed, an ice-cap was applied to the head, and he was given a five-grain dose of calomel, which was to be followed by the iodid of potash, in doses of ten grains, three times daily.

Nothing new developed until the night of July 8th. He then had a slight local convulsion, but the note of the next day says that "It did not bother him sufficiently to call the attention of the nurse to it." On the next day the patient seemed no worse.

At 6.15 A.M. on July 10th the patient commenced to be convulsed again. The right arm and leg began to jerk violently and rhythmically at intervals of two or three seconds. The alternate contraction and relaxation of the muscles closely resembled the effect produced by the slowly interrupted faradic current. The whole right side of the face and body was concerned in the convulsion, the muscles most involved being those of the right upper eyelid, the right side of the face, right side of neck, chest, and back, and the right arm. The right leg only occasionally contracted spasmodically. The note is not very clear as to the mental condition during the attack, but states that "there was no pain whatever," seeming, therefore, to corroborate my memory in regard to the more or less perfect retention of consciousness during the seizure. The attack lasted three-quarters of an hour. After the attack was past he complained of feeling tired, and it was noted that the right arm and leg were distinctly weaker. Careful examination showed no change in sensation.

On the next day (July 11th) he had no attack, but complained of a vague sensation in the left side of the head, that made him apprehensive of a seizure. This sensation was lessened by the application of an ice-bag.

On July 12th the patient was more stuporous, and was unable to raise the right arm, to articulate distinctly, or to put out his tongue. His temperature, which for the two preceding days ranged from 98.2 to 99.4°, rose, by 2 P.M., to 100°. A small quantity of urine was obtained by catheter, and found to be highly albuminous. He was put on the protoiodid of mercury on this day.

On the morning of July 13th the temperature was 99.4°, pulse 84, respirations 20. He was unable to move the right arm, and could not talk. Swallowing was quite a difficult act. Careful examination showed no other change in his condition. In the afternoon the temperature rose to 102.4° and his respirations became more labored.

On July 14th the morning temperature was 99°, pulse 90, respirations 22. He had a large number of involuntary stools since the day before. He was unable to take nourishment by the mouth, and was given nutrient enemata. Mercurial inunctions were instituted and the nape was well cupped. During the day Cheyne-Stokes breathing developed. In the evening the temperature rose to 102.6°, pulse 104, respirations 26.

During the night and the next day the patient remained unconscious, but no convulsions were present (nor had he had any since July 10th). Death occurred at 5 P.M.

The diagnosis made before death was tumor of the brain of latent course, with sudden accession of symptoms due

[1] Read before the College of Physicians of Philadelphia, May 6, 1896.

to hemorrhage within its substance. The location of the tumor was supposed to be in the subcortical region on the left side of the brain, the destruction of brain-tissue being probably greatest near the origin of the internal capsule, but it was supposed that the hemorrhage was at first most marked near the cortical side of the tumor, producing irritation of the cortex and convulsive seizures. How erroneous the diagnosis was can be seen by the report of the necropsy. While the possibility of cerebral abscess was, of course, considered, the absence of middle-ear disease, of trauma, of primary focus of pus, caused that, the easiest explanation of the symptoms and course of his illness to be rejected.

Post-mortem examination was made on the day after death, and the following notes were dictated. Well-nourished body; skin dark. There is some dense edema of the legs, and on the shins a copper-colored, diffuse eruption, with small superficial scars.

Scalp and calvarium are normal; also bone, dura, and sinuses at base of skull. Dura mater is somewhat adherent to convexity of cerebral hemispheres. Beneath the pia arachnoid covering the lower surface of the cerebellum there is a diffuse movable collection of about a dram of greenish-yellow pus. Arachnoid in that situation is opaque, thickened, and wrinkled. Base of brain is normal, except for some overfulness of the vessels. Island of Reil is normal on both sides. Vessels of pia arachnoid over convexity generally are filled with dark blood. Over parietal lobe of left side, pia arachnoid is adherent to brain substance. On handling the brain a rupture took place just behind the supramarginal gyrus, and about an ounce of fetid, greenish, thick pus escaped. The left lateral ventricle filled with greenish pus, and the ependyma is thickened, granular, dark, and almost gangrenous in appearance. The surface of the basal nuclei was softened. On the right side the lateral ventricle and its nuclei were normal. In the third ventricle there was some greenish pus similar to that in the left lateral ventricle, but the ependyma looked quite normal. The iter contained a little pus, as did also the fourth ventricle. The wall of the latter was granular and softened. On section of the hemisphere it was found that beneath the supramarginal gyrus of the left side there was a walnut-sized cavity, with black, gangrenous walls, just beneath the cortex and extending inward and downward to open into the lateral ventricle, and also extending forward and downward into the basal nuclei. On section of the basal nuclei of the left side, it was found that the abscess cavity had encroached upon the lenticular nucleus, the whole lower two-thirds of which were gangrenous. All of the basal nuclei on the left side were distinctly softened. Organs of abdomen are in normal position. Pleural cavities are normal and free from fluid and adhesions. Pericardium is normal.

Primary section of the heart shows that all chambers are filled with clots. In all chambers there is much chicken-fat and currant-jelly clot, but there is also a small quantity of adherent *ante-mortem* clot. Heart is globular in shape. Apex is made up of right ventricle. Large proportion of the total bulk of the heart is composed of the right auricle. Coronary arteries are very prominent. Weight of heart, when freed from clots, is fifteen ounces. Muscle-substance of all chambers is of a deep brown. Right auricle is tremendously dilated. Appendix of auricle is also much enlarged. Thickness of wall of right auricle at thickest part is about 2 mm. Endocardium of auricle is smooth. Foramen ovale patulous, admitting the end of a lead-pencil. Immediately below the foramen ovale there is a deficiency in the interauricular septum, leaving an arched entrance from the right to the left auricle, that permits of the insertion of the index-, middle-, and ring-fingers. The arch is evidently composed of muscle-fiber; its edge is smooth and rounded, and the surrounding endocardium is thin, clear, and otherwise normal in appearance. The orifice in the septum is bounded below by the lines of attachment of the anterior mitral and posterior tricuspid leaflets. On looking into the right auricle from above, one sees the auricular surfaces of the mitral and tricuspid valve leaflets, and also through the deficiency the posterior wall of the left auricle. The left auricle is very much smaller than the right, being even somewhat smaller than normal. On looking into it from above, one sees the patulous foramen ovale; below this the arching border of the interauricular opening and the interior of both right and left ventricles is plainly to be seen. The auricular appendage communicates with the cavity of the auricle by an orifice that just engages the tip of the middle finger. The right ventricle is much dilated and its wall hypertrophied. The muscle-substance is somewhat darker than normal, but is otherwise of normal appearance. The thickness of the wall is 13 mm. Columnæ cornæ are very thick and firm. Two large papillary muscles spring from the septum, and a diminutive one arises from the anterior wall. The tricuspid orifice readily admits four fingers. Valve leaflets of tricuspid normal, except for their extraordinary largeness. The chordæ tendineæ of the tricuspid valve are remarkably numerous and very thick. The undefended space is closed merely by the posterior tricuspid and anterior mitral leaflets. The finger readily passes from the channel of the tricuspid into that formed by the mitral leaflets, and the finger so passed through the interventricular deficiency is plainly seen on looking down into the auricles. The pulmonary artery cusps are very large, but are otherwise normal in appearance. The pulmonary orifice measures 10 cm. 1 mm. in circumference. The aortic orifice measures 7 cm. 6 mm. in circumference. The cavity of the left ventricle is relatively small—about two-thirds that of the right ventricle; its wall measures 7 mm. in thickness. Endocardium appears to be normal. There is but little development of the columnæ cornæ. There is only one well-formed papillary muscle, which springs from the posterior wall, is short and very thick. This sends three short, thick chordæ tendineæ to the posterior half of the anterior mitral leaflet and two to the posterior leaflet. The other chordæ to the latter spring from two rudimentary papillary muscles that arise from the posterior wall. The anterior portion of the anterior mitral leaflet stretches across from the chordæ already mentioned as arising from the papillary muscle, and is pushed through

the deficiency in the septum in such a way that upon looking at the edge of the deficiency from the right ventricle, there are seen several short chordæ tendineæ rising from the right side and edge of the septal border and running through the orifice to join the anterior portion of the anterior mitral leaflet. Both of the mitral leaflets are somewhat opaque. The aortic orifice is guarded by three cusps, all of which are freely perforated near their free borders. The cusps otherwise show nothing out of the way. The coronary arteries spring from the root of the aorta in the normal position, the orifices being very large. At the root of the aorta there are a few scattered patches of yellowish-white thickening. The importance of a thorough examination of the arch of the aorta and its branches and of the pulmonary artery was not realized until after the heart had been taken away for more careful study, when it was too late to make a further examination.

Sections of the vermiform appendix show a marked amount of submucous round-celled infiltration generally, while in one area the center is necrotic, and evidently has proceeded to abscess-formation. The kidneys show diffuse round-celled infiltration of the interstitial tissue.

To first dispose of the cerebral abscess, it is possible that it may have been due to embolism from the vermiform process, although it seems an unlikely situation for a solitary embolic manifestation from disease of that portion of the intestinal tract. There was no other possible source of origin for the pus. From the character of the collection in the brain, it was thought to be probably due to disease of the middle ear, but careful examination of the base, and especially of the petrous bone, showed no evidence of disease. It is possibly only a coincidence, but is at least a remarkable fact, that at the last meeting of the American Pediatric Society three cases of abscess of the brain occurring in the subjects of congenital heart disease were mentioned. One case was reported by Acker of Washington and one by Jacobi of New York, while the subject of the present article was referred to by the writer in the discussion upon these two cases.

The lesion of the heart in this case resembles, in most respects, the not extremely unusual one of patulous foramen ovale, deficiency of the auricular septum, and deficiency of the ventricular septum at the undefended space. The most remarkable features are the large size of the pulmonary artery as compared with the aorta, and the peculiar arrangement of the anterior mitral leaflet, whereby it receives most of its chordæ tendineæ from the right edge of the border of the septal orifice.

While the dissection of the distal portions of the great vessels was not carried out, it would seem that the specimen represents a failure of development—an agenesis—pure and simple, rather than a permanent defect produced by inflammatory lesion preventing the normal separation of the cavities. It is impossible to see why such extensive failure of achievement of this separation should occur where a much smaller amount of communication between the cavities has been ordinarily produced by even extreme stenosis of one of the arterial orifices of the heart. It seems that the deformities present in this case can be readily explained by a failure of the commissural band to form by fusion of the median parts of the auriculo-ventricular lips of Lindes, with simultaneous failure in development of the primitive interauricular septum and of the median portion of the interventricular septum. The ventricular septum is completed toward the end of the eighth week; the auricular septum forms only after the completion of the separation of the ventricles and that of the arterial bulb. The formation of the commissural band also occurs after the completion of the latter. It can, therefore, be seen that the time at which this anomaly was produced was just prior to the completion of the interventricular septum, and at a time when the primitive auricular septum was simply represented by a ridge coursing over the ceiling of the common auricle.

The failure of development of the commissural band would account for the peculiar complete absence of separation between the anterior mitral and posterior tricuspid leaflets. Rokitansky[1] has likened the auricular canal after the formation of the auriculo-ventricular lips to a figure shaped thus: ⊢—⊣, the long horizontal arm of which represents the space between the surfaces of the auriculo-ventricular lips, the shorter perpendicular arms representing the future auriculo-ventricular orifices.

According to Moussons,[2] the relations of the auriculo-ventricular valve leaflets in cases of failure of development of the interauricular septum may fall into one of three categories: (1) The auriculo-ventricular valves remain in relation with the inferior border of the incomplete interauricular septum; (2) they may be inserted upon the superior border of an incomplete interventricular septum; or (3) they are only attached to the commissural band, which has maintained its independence. In the present case the anterior mitral leaflet is divided into two portions—an anterior, springing from the common auriculo-ventricular border and with chordæ tendineæ, which arise from the right side of the interventricular septum and pass through the deficiency therein, and a posterior portion, which arises from the auriculo-ventricular border and has chordæ tendineæ springing from the poorly differentiated posterior papillary muscle. Between these two portions there is a cleft corresponding to the plane of the incomplete septa and, therefore, to the position that should be occupied by the commissural band. The small size of the left ventricle in the present case is very striking, the septum protruding into its cavity, *i.e.*, the septal surface viewed from the left ventricle, is convex. Upon the left ventricular surface of the septum there is a thickened layer of muscle-fiber, looking not unlike a flattened and poorly developed papillary muscle. Taking into account the position of the septum, toward the left side of the heart, this flattened, aborted papillary muscle on its surface, and the origin of the anterior portion of the cleft anterior mitral leaflet from its upper and uncompleted portion, it seems not unreasonable to attribute this malposition of the leaflet and the small size of the aorta (as compared with the pulmonary artery), with the lessened capacity of the left ventricle to the origin of the ventricular septum from a point too far toward the left, rather than to con-

[1] "Die Defecte der Scheidewände des Herzens," p. 68.
[2] "Maladies Congénitales du Cœur."

sider the small size of the left ventricle as dependent upon the small dimensions of its arterial trunk. In view of the absence of careful study of the subsequent character and the main divisions of the aorta and pulmonary artery, it is impossible to deny a transposition of the divisions of the arterial bulb as the causal factor in the case, but the latter explanation seems to the writer to be less satisfactory than does the former.

In regard to the duration of life in lesions of this character, but little need be said, inasmuch as the principal defect (deficiency in the formation of the auricular septum) is the congenital lesion that is least incompatible with life, save in cases where there is simple failure in the complete development of the interventricular septum at the undefended space. That auricular defect can exist for many years, is seen by the following brief summary of facts:

Peacock[1] says: "Where there is only some slight irregularity in the development of the heart, so that small openings exist in the septa of the auricles or ventricles, the defect is of very little importance; indeed, it is by no means uncommon for such openings to be found in the hearts of persons who have died at advanced periods of life, and have never presented any signs of cardiac disease. On the other hand, where the arrest in the development of the heart is more extensive, and is combined with some form of obstruction, it becomes a source of serious suffering, and the duration of life is limited to a comparatively short period." He gives no definite data as to the length of life of cases with marked septal deficiency, and it would seem that in the above sentence he refers rather to the cases of slight communication between the cavities, as in the case of unclosed, undefended space or patulous foramen ovale, than to such marked deficiency of separation as was present in the specimen from my case.

Moussons[2] groups all cases from a prognostic point of view into eleven classes, of which but one—composed of malformations of the interauricular septum—in any way corresponds to this specimen. In this group he collects 19 cases, of which 5 died between the ages of thirteen and twenty years; 6 between twenty and twenty-five years; 5 between twenty-five and forty years; and 3 between forty and fifty years. In this table no statement is made as to the size of the orifice between the auricles, a factor that cannot fail to have much bearing upon longevity. In a heart wherein the primary auricular septum was completely developed, with simply a cribriform arrangement of this, due to failure of development of the secondary interauricular septum, there might be but little commingling of the blood-stream or alteration in the dynamics of the heart.

Rokitansky[3] relates details of twenty cases of defect of the interauricular septum of greater or less degree. Of these twenty cases, two newborn and eighteen adults were the subjects of the anomaly. The ages of the adults varied from nineteen to sixty years. As many of these present marked points of similarity to the present case, a brief account of some of them may be not without interest. In Case I, a man dying at the age of fifty-five years with a variety of lesions, including tuberculosis of the lungs, an apparent internal pachymeningitis, and a variety of other lesions unconnected with the cardiac anomaly, there was an interauricular communication, having a diameter of 28 mm., and due to defect in the primary septum. Case II was an adult (age not stated), whose heart presented a rudimentary interauricular septum, a closed foramen ovale, and a split aortic leaflet of the mitral (as in my case). The interauricular orifice measured 30 mm. in diameter. The man had in addition pericarditis, purulent exudate in the right pleural cavity, ascites, and anasarca. A drawing of the auricular defect in this case[1] fairly represents the appearance in my own case, save for the closure of the foramen ovale. Case III died of typhus at the age of twenty-three years, the heart showing an orifice between the auricles that measured 18 by 28 mm., and a split anterior mitral leaflet. Case VI concerned a sixty-year-old man, whose body showed, in addition to the cardiac anomaly, the remains of an encephalitis. The interauricular communication measured 9 mm. by 5 mm. The case is mentioned here because of the apparent similarity between this and the writer's specimen in regard to the peculiar connections of the aortic leaflet of the mitral valve with the defective septum ventriculorum. Case VIII died at the age of fifty years, and autopsy revealed, in addition to many small hemorrhagic cerebral lesions and pulmonary artery thrombosis, an interauricular defect measuring 57 mm. in diameter. Case X died at the age of forty-two years, and possessed an interauricular defect that measured 40 mm. in diameter. The case died with universal edema, but from the data given it is impossible to determine the influence of the cardiac defect upon the length of life. The other cases either died at a much earlier age or had but little in common with my case from an anatomical point of view.

The facts in my case may be summarized as follows: Clinically, the case is of interest from the fact that the patient apparently suffered so little from a marked cardiac defect that he was able to perform the arduous duties of a sailor until the onset of a presumably independent cerebral lesion, eighteen days before his death; from the occurrence of a cerebral abscess, the only discoverable source of origin for which was the inflamed vermiform appendix. Pathologically, the interest in the case lies in the great lack of development of the septum atriorum, the smallness of the left and large development of the right side of the heart, and the peculiar arrangement of the anterior mitral leaflet and of the chordæ tendineæ of the anterior portion thereof.

[1] "On Malformations, etc., of the Heart," p. 129.
[2] *Loc. cit.*, p. 226.
[3] *Loc. cit.*, pp. 34 to 53.

A CASE OF ANGIO-NEUROTIC EDEMA.

By NORMAN C. YARIAN, M.D.,
of Cleveland, O.;
House Physician to Cleveland General Hospital.

On May 1, 1895, I was called to see Mrs. K., who was suffering from a severe "sick spell," as she termed her periodical attacks. I found her vomiting and retch-

[1] *Loc. cit.*, p. 37.

ing in the most violent manner, and doubled up on the floor from severe pain, which she located in the epigastric region. The vomited matter was mostly biliary. Her hands and face were very edematous; her pulse weak and rapid, while her moans were audible at some distance.

The picture was one of seeming great agony, and yet I felt that there was a nervous element in her trouble. I knew of her having had the attacks from childhood, and being unable to make a diagnosis at that time, I treated the case symptomatically.

My prescription was morphin ⅙ grain, atropin $\frac{1}{180}$, hypodermatically, with bismuth subnitrate, ipecac, and calomel in small doses by mouth, followed after vomiting had ceased by moderate doses of calomel, to unload the bowels and stimulate the kidneys to more active secretion, and sodium bicarb. She soon experienced relief.

I was called at several subsequent attacks and always gave the hypodermic, but sometimes changed the other prescriptions. Thinking the trouble at least partially a nervous one, I prescribed strychnia $\frac{1}{60}$ grain three times a day between the attacks, followed by a general tonic of nux vomica, gentian, and cascara for her constipated habit. This medication seemed to make the attacks lighter and less frequent while taking it, but had no lasting effect. Nor did a course of syrup hypophos. co. give any permanent relief.

Her history, both personal and family, is of interest, showing the hereditary and nervous nature of the disease.

History.—Mrs. K., aged fifty-four, American, married, two children, both girls; oldest died at age of twenty-one from tuberculosis; showed no symptoms of mother's disease except a very irritable disposition. Other daughter living, aged twenty-five, is the mother of a healthy daughter. Neither mother nor child have shown symptoms of the disease except the same irritable dispositions.

Mrs. K. relates that while she was still a child, her mother noticed periodical attacks of blanching of the surface of the skin and vomiting. She cannot remember a time when she has not suffered from these periodical attacks of edema, following by gastralgia and vomiting.

The attacks begin by a general feeling of malaise or pain, soon some part of the body, usually the hands, face, feet, arms, shoulders, or chest, will begin to swell and become very edematous. Often, simultaneously with the edema, occur purple rings upon the chest, neck, arm, and hypogastric region. These, however, more often occur just as the edema subsides. Mental emotion, particularly anger, is capable of precipitating an attack, and they often occur with great suddenness. Her appetite is often ravenous and erratic just before an attack, but nothing she eats seems to influence the attack or precipitate it. From twenty-four hours to two days after the swelling begins she is taken with a severe distinct pain, usually in region of the stomach, but sometimes in the bowels. She describes it as being very severe, even terrible and prostrating. This is followed by nausea and vomiting, with severe retching. After freely vomiting, her pain and edema leave, an attack in the morning often failing to incapacitate her for labor in the afternoon.

The attacks show a marked periodicity, occurring on an average of once in two weeks since her child-bearing period, but previously every week for several weeks, then skipping several, nine weeks being the longest period of immunity which she has ever enjoyed. The edema sometimes occurs without the vomiting and pain. The attacks are always more severe when occurring at a menstrual period, and they were also more severe during her menopause.

The patient had the attacks regularly during both gestations.

Family History.—Mother had same attacks from childhood, but not so severe. Never had them during periods of gestation. Died at the age of sixty-three years of dropsy. (Could not learn the cause.) After menopause, she suffered from purpura, and her attacks grew lighter, occurring every two to six weeks. Patient's two brothers and one sister not affected. Uncle on mother's side had same attacks. He looked like his mother and grandfather. Died at age of forty-two of edema of glottis. One other uncle and aunt well. Deceased left one child, a girl, who has periodical edema, but no gastralgia nor vomiting; also one boy who had edema, but died at age of seven years of scarlatina. Grandfather (on mother's side) and some of his brothers had same periodical edema, but lacked the pain and vomiting. Great-grandfather (on mother's side) had same edema, but none of the other symptoms. The attacks have grown worse from generation to generation up to the last two, which have so far proven immune.

There is a marked nervous element in the attacks as shown by the sudden oncome and also sudden disappearance. Their effect upon her general health and strength is very slight, and will perhaps only slightly influence longevity.

No physician has ever been able to influence the disease in any of the successive generations, except for a very brief time.

NEW APPARATUS.

A SIMPLE AND EFFECTIVE SPLINT FOR THE TREATMENT OF HIP DISEASE.

BY AP. MORGAN VANCE, M.D.,
OF LOUISVILLE, KY.

FOR the past fifteen years or more I have been using a short fixation splint in the treatment of hip disease, made of the fine saddle skirt leather, molded over the patient and made removable by lacing, crutches with high shoe being necessary for locomotion. The advantages claimed for this splint were its lightness, cleanliness, durability, and the fact of its easy removal; besides, it could be prepared without the aid of an instrument-maker, and could be worn effectively without the constant care of the surgeon. Therefore it served an excellent purpose in those cases which came from a distance for treatment. The great disadvantage in the use of this very simple apparatus was found to be the tendency on the part of the little patients to lay aside the crutches in the excitement of play and walk on the diseased limb, notwithstanding the hampering influence of the high shoe on the affected side.

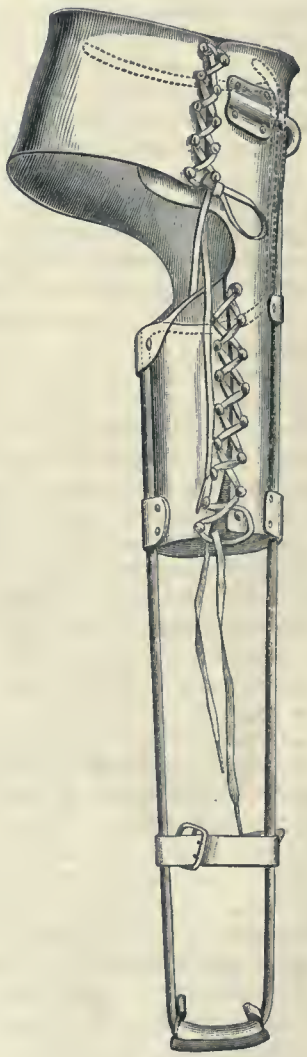
My friend Dr. J. B. Bullitt, of this city, suggested to me the trial of the splint used by Lorenz, of Vienna, which is a plaster-of-Paris splint, reaching from the umbilicus to just above the ankle, combined with a stirrup of strap-iron under the foot, a high shoe on the good foot, the weight of the body resting on the ischium, where the splint was furnished with a good pad. The idea which I had entertained for a long time of making my splint a walking apparatus was stimulated by a trial of the plaster-of-Paris splint of Lorenz, and I made the effort in November of 1895. Instead of the strap-iron as used by Lorenz for the stirrup, I used a small, solid brass rod, a material I had employed for a long time for knee-splints and paralytic apparatus. The very satisfactory use of the apparatus resulting from this first experiment, along with some dozen other cases to which I have since applied it, influences me to give it to my professional brethren, with a short description of the method of its construction, illustrated as best I can with cuts.

The original leather fixation splint referred to is made as follows: If there is deformity present, or an acute exacerbation in the joint, a weight and pulley are applied and the child kept in bed for a few days or weeks, as may be required; then the piece of leather is cut from a side of the best saddle skirting, after a pattern of paper which has previously been fitted to the patient. The shape of this is represented in the outline drawn in Fig. 1. When this is molded — which is made very

Fig. 1.

easy by immersing the leather in hot water until well wetted through, the temperature of the water regulating the stiffness of the splint when dry, a few degrees below boiling making it about right, an ordinary roller, or better an elastic bandage, is used to mold it to the patient—it extends from the umbilicus to the knee, the leather being so cut and placed as to bring the lacing of the thigh and pelvic portions in front. Two nicely trimmed tongues of the same leather are cut from the flank part and riveted on with a tubular riveting machine, large shoe-hooks having first been placed along the outer edge of the part to be laced. A special tool is required for this; or the lacing may be done through simple holes made with the ordinary leather- or belt-punch. It is best to put the hair or smooth side of the leather next the skin; then, ordinarily, nothing need be worn between the splint and the body. While this leather portion is allowed to set, not to dry, an outline drawing is made of the splint in position and the leg below, care being taken to locate on the paper the upper edge of the splint, the ischium, lower edge of the splint, bottom of heel, and a point 2½ inches below the heel. This drawing will be needed as a working pattern to be used in properly bending the brass rod, which will make up the balance of the apparatus. A solid brass rod from one-quarter to three-eighths of an inch in diameter, the length necessary being determined by measurements of the special pattern, is bent so as to be

Fig. 2.



applied to the splint of leather in such a way as to extend from the front of the pelvic part of the splint down the outer side of the limb, under the foot, up the inner side of the limb to the ischium, around to the outer side of the splint, to meet again about the trochanteric region, up the outside of the pelvic part, and back to the middle of the pelvic portion behind. This brass frame is then fastened to the leather by leather battens riveted through and through with tubular rivets, a smooth pad of leather

being fitted over the rod and leather so as to form a firm rest for the seat-bone. A leather band below to fix the leg, and a leather sole with arrangement for attaching extension, if needed, complete the apparatus, the whole being covered with a thick coat of shellac if the child is in the habit of wetting the bed.

Fig. 2 shows the splint complete. The great durability and firmness of this splint, along with the fact that it is easy of removal and that it cannot be improperly applied, coupled with the fact that it can be made by the surgeon himself, and fills all the mechanical indications in the treatment of this most troublesome disease, make it, in my humble opinion, one of the best mechanical contrivances yet proposed. The comfort with which the little patients are immediately able to walk about, and the simplicity of its construction, with its cheapness, will recommend it for a trial.

MEDICAL PROGRESS.

Intestinal Sand and Muco-membranous Enteritis. — In two cases mentioned by MATHIEN and RICHARD (*Gaz. hebdom. de Méd. et de Chirurg.*, May 28, 1896), the feces were mixed with grains of yellow sand, one-quarter to one-half millimeter in diameter. In one case, the grains were often agglutinated, and formed masses much resembling white pepper kernels. In their composition, the salts of lime predominated, and in this they resembled the calculi sometimes found in the appendix, intestine, nasal passages, bronchi, etc. In both cases mucoenteritis was present, which the authors looked upon as the cause of the concretions, as the membranes contained microscopical crystals of calcium phosphate. The abnormal deposit of these crystals in the mucous membrane would, it was thought, cause mucoenteritis, and the stasis due to constipation, would allow the formation of the palpable grains of sand.

Others have mentioned the coexistence of mucoenteritis and intestinal calculi.

Removal of One-half of the Kidney for Tuberculosis; Favorable Prognosis in Renal Malignant Disease.— How important has become the application of surgery to the kidney, is shown by the fact that a single operator, J. ISRAEL of Berlin, is able to report (*Deut. med. Woch.*, May 28, 1896) 126 cases so treated by himself. Eleven times the kidney was extirpated on account of tubercular disease. In a twelfth case, the lesions were situated so evidently in one end of the organ that Israel decided to remove only the upper half of it. Hemorrhage was avoided by digital compression of the renal artery during the cutting away of the diseased portion. Then a compress was held against the cut surface for some minutes; upon its removal there was no bleeding, but for safety, a piece of gauze was stitched by catgut against the cut surface. Recovery was prompt and complete, and the patient has remained in good health for over a year.

This operation is recommended only in exceptional cases, as tubercles too small to be observed at the operation usually extend beyond the area of the gross lesion.

Another encouraging feature of this report is the chapter on malignant tumors of the kidney. There were seventeen such cases—six carcinomata; ten sarcomata, and one so-called struma renalis. Complete nephrectomy was performed in each case. Two patients died from operation; one a year later, of acute peritonitis, without recurrence of the cancer, and six were well at the time of report, no recurrence having manifested itself in periods ranging from fifteen months to nine years.

Chlorosis No Contraindication for Marriage.—The question which is often put to the physician as to whether a chlorotic girl ought to marry, has been fully discussed in a monograph by GROSSET (*Thèse de Paris*, Steinheil, 1896). His conclusions are :

1. The physical and spiritual excitement which marriage offers a chlorotic girl can have only a favorable effect upon her disease.

2. The sterility of chlorosis is only a temporary one in most cases, the rare instances of infantile genitals being excepted.

3. Chlorosis does not predispose to abortion.

4. The children of a chlorotic woman are likely to be chlorotic, but seem to show little tendency to become tuberculous.

Chlorosis, therefore, is no contraindication for marriage.

Tumor of Mesentery; Tubercular.— In the *Deut. med. Woch.*, June 11, 1896, GRUNEBERG mentions a rare case of tuberculosis isolated in the mesenteric glands, and resulting in an abscess holding about two pints, which formed a freely movable tumor in the right side of the abdomen, the site of which was correctly diagnosed, but whose nature was not suspected until it was ruptured in the attempt to shell it out of the mesentery. The patient was an eight-year-old girl, with no previous illness except a diarrhea of short duration three months previous to the appearance of the tumors. At the autopsy, three days after operation, other mesenteric glands were found tubercular, but there were no other traces of tubercle organ.

Technic of Esophagoscopy.—V. HOCKER (*Wiener klin. Wochenschr.*, 1896, Nos. 6 and 7) uses a Mikulicz-Leiter instrument with a small incandescent light. The tubes have a caliber of from 11 to 14 mm., and are 19, 30, 40, and 45 cm. long, corresponding to the usual situations of cancer at the beginning of the esophagus bifurcation of the trachea, lower end of esophagus, and cardiac end of stomach. Hocker begins the passage of the instrument with the patient in a sitting posture, but allows him gradually to recline on his side with his head over the edge of the table. Cocain in the pharynx is better than morphin, and controls the flow of saliva. In two hundred cases no accident has resulted; in two cases, the instrument could not be passed.

The Mortality After Removal of the Scapula.—SCHULTZ has made a study of the 214 cases recorded in medical literature in which the whole scapula was removed, either alone or with the arm and part of the clavicle. The results as published in the *Deut. Zeit. f. Chirurgie*, vol. xliii, p. 442, are worth knowing.

REMOVAL OF SCAPULA ALONE.

	Cause.	No. of Cases.	Mortality, Per cent.
Before 1875.....	Malignancy.	23	17.39
After "	"	28	7.14
Before "	Caries, etc.	8	12.50
After "	"	14	....
.....	Injury.	17	52.94

REMOVAL OF WHOLE UPPER EXTREMITY.

	Cause.	No. of Cases.	Mortality, Per cent.
Before 1875.....	Malignancy.	26	19.23
After "	"	69	13.04
.....	Caries, etc.	7	.....
.....	Injury.	22	36.36

From these tables it is evident that the prognosis after this formidable-appearing operation is much better than might be expected. The percentages of recurrence after operation for malignant tumors are less satisfactory. These are given as 35 and 28 per cent. before and since 1875, where the whole shoulder was removed, and 39 and 19 per cent. in those cases where the scapula alone was removed, before and since 1875.

THERAPEUTIC NOTES.

Hemol Bromid.—In order to avoid the unpleasant after-effects of the inorganic bromids, KOBERT (*Therapeutische Wochenschrift*, 1896, No. 17, p. 400) has been making trial of an organic bromid which has no injurious effect upon either the blood or digestion. It contains only 2.7 per cent. of bromin, as against 67 per cent. which bromid of potassium contains. But only a small portion of the bromin contained in the latter salt exerts any action in the body.

Holst used bromid of hemol in fifty cases of nervous disease. If a rapid effect was looked for, two grams (thirty grains) were given three times a day. One-half or one-third of this dose was employed for a calming effect, In epilepsy and hysteria, he obtained no good results where the inorganic bromids have shown themselves efficacious. In insomnia, the results were equal to sodium bromid, without any unpleasant sequelæ.

The conclusion is that bromid of hemol is not capable of replacing inorganic bromids where a rapid effect is desired. It is indicated, however, in cases where the sedative and long-continued action of bromin is sought for.

Abortion from Guaiacol.—A woman twenty-nine years old, and three months pregnant, was given (PETRASKO, *Pesther med. Chir. Presse*, 1896, No. 5) at morning and noon three-quarter grain of guaiacol on account of an affection of the left pulmonary apex. On the sixth day, when about twelve grains had been taken, the patient aborted. The physician could find no other reason for the abortion except the guaiacol.

Influence of Somatose on Milk Secretion.—The diminution or disappearance of the mother's milk in a few months or perhaps in only a few weeks after her child is born, is a source of annoyance and pain to the mother, and may prove fatal to the baby. It is no wonder then that DREWS of Hamburg, feels happy over the results which he has been able to obtain with somatose, and which he describes in the *Centralblatt f. Innere Medicin*, June 6, 1896. He has given the drug in teaspoonful doses, three or four times a day, to twenty-five women who experienced premature exhaustion of breast milk, caused by anemia or by loss of blood during pregnancy or labor, or by debility from frequently repeated parturition, or by intercurrent diseases. In every case the secretion of milk became sufficient for the baby, and the pains in back and breast disappeared.

The results could not be attributed to anything else than the somatose. The diet was not an especial one. Many of the patients had been treated with tonics and other remedies without avail. It was further shown that when the somatose was cut off, in a very short time the milk began to diminish, and the pains returned, even though the appetite and general health were in no way affected.

Arsenic by the Rectum.—VINAY (*Lyon Méd.*, April 12, 1896) prefers to administer arsenic by rectal injection, for the reason that despite every precaution, subcutaneous injections are apt to be followed by abscesses, and because arsenic, given by the stomach, for a long time upsets the stomach and takes away the appetite.

He uses a mixture containing one part of Fowler's solution and fourteen parts of water, of which he injects at first 80 ♏ (5 grams), morning and evening, and later the same dose three times a day. This treatment may be continued a long time without causing rectal tenesmus. The sole contraindication is a possible diarrhea.

Action of the Stomach During Sleep.—Examination of the contents of the stomach obtained in sleep, have convinced SCHULE (*Berl. klin. Woch.*, 1893, No. 50 and 51) that the acidity of the stomach is greater during sleep, and that its motility is lessened. Persons with digestive trouble, therefore, especially if hyperacidity is present, ought not to sleep after eating. Instead, the meal should be followed by wakeful repose.

Successful Laparotomy for Ruptured Uterus.—Three hours after labor began in a twenty-one year old, III-para, the membranes ruptured and a hand came down. Two hours later, a midwife made desperate attempts to extract the child by this arm. There was a sudden pain and collapse, with pulse of 128. About two hours later, the abdomen was opened, and the child and placenta found in the peritoneal cavity, the rupture being on the anterior wall of uterus and vagina, and extending into the left broad ligament. The uterus was removed, and its stump treated extraperitoneally.

According to REIN (*Wratsch*, 1896, No. 6), whose case this is, laparotomy has been performed in rupture of the uterus twenty-five times, fifteen times successfully.

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SATURDAY, AUGUST 29, 1896.

THE PRESENT ADMINISTRATION AT QUARANTINE.

In a position so important as that of health officer of the great port of New York, with duties and responsibilities so delicate, it is peculiarly fitting that the professional public should keep well informed as to what is going on, for in the successful management of the office the medical profession, as well as the public at large, is greatly concerned. Indeed, a mistake here may prove very costly, as history of no very remote date will show; and the entire medical profession will then come in for a share of the blame, which the dear public is ever ready to bestow upon the unsuccessful office-holder. The present administration has clearly taken advantage of certain errors and omissions of the past, and has brought its work to such a high degree of efficiency that to withhold approval would be simply to ignore good work and honest endeavors.

The health officer and his deputies, when on duty, are in uniform; and this, it strikes us, is a distinct gain in the way of producing a good impression upon those with whom they are brought into official contact. The uniform is the badge of authority, and its presence must impress with the majesty of the law among us those who visit our shores for the first time.

The official headquarters, which were destroyed by fire some months ago, are being replaced by a commodious and tasteful structure, which will soon be completed. Within this building, in addition to offices for general business, will be located a bacteriological laboratory, which is already fully equipped in temporary quarters. The meaning of this laboratory to a conscientious official, and the additional security which the public obtains thereby, cannot be overestimated. A suspicious case of disease appearing upon a ship, a bacteriological examination of the secretions or discharges reveals its character in a few hours with unerring determination, and decides whether the ship may proceed on her way to port or be detained with her passengers and cargo. This fact is not usually appreciated by the general public, and the solution of this question of delay by the present health officer certainly reflects the greatest credit upon him. If a ship arrives after sundown, instead of being obliged to lie at anchor for the night in the lower bay, she is inspected at once and allowed, if in suitable condition, to proceed to her berth. If there are immigrants or others requiring individual inspection, an electric search-light is set up upon the deck, and under its powerful beams the inspection is satisfactorily accomplished. If passengers or cargo require disinfection, the boat, which the health officer has just had constructed, will accomplish it *tute, cito, et jucunde*. A row of bathrooms on either side of the boat will quickly disinfect eight persons by spray or vapor, or both. Clothing, bedding, etc., is all disinfected by steam, *in vacuo*, in a great car, such as is in use by the Board of Health in this city. The cargo itself is disinfected by sulphur gas, which is carried from the disinfecting boat in pipes, under pressure, and distributed where needed, as water is distributed with hose. Thus, a ship, her cargo, and her crew, coming from an infected port could, in a few hours, be sent into the harbor with a clean bill of health, the safety of the public being assured and the rights of the shipping-master protected as well. Surely this is a prodigious advance over old methods.

Should a ship come to our shores, containing many cases of infectious disease—cholera, for example—there would be no long and vexatious detention of the well and clean, together with the sick. The former, after disinfection, would go on their way, and for the latter the health officer has provided large and commodious barges anchored near the quarantine islands, isolation being thus complete and the conditions as favorable as possible for recovery. Of course it is to be hoped that this system may not require the severe test of experience, but if it should, we see no reason to doubt its efficiency. If successful, it would redound primarily to the great credit and praise of the present health officer; it would also be a demonstration to the public that its safety in sanitary matters depends largely upon the endorsement and support of the medical profession.

COMPARATIVE PATHOLOGY.

In these days of the multiplication of special fields in medicine, heavy is the responsibility of the man who dares to add one additional acre to the already continental area which must be kept under cultivation. And yet, this is what appears to have been done in the establishment of chairs of Comparative Pathology by the University of Buffalo three months ago, and by Harvard a few weeks later. The addition, however, is more apparent than real, as the new field is to be opened up not so much in search of new facts as for the purpose of finding a key to many of the facts and problems already in our possession. The aim of the new work is mainly to find the physiological prototype and ancestor of our human pathological processes, or that simpler form of disturbance of metabolism out of which have grown our own more complicated disease-processes. To this end the enormous mass of facts already reported by zoölogists, botanists, vegetable pathologists, veterinarians, and agriculturalists, now scattered through a dozen fields and languages, and a hundred journals, must be collected and classified for the use of the human pathologist, and even though the search for the physiological type of human disease be as fruitless directly as that of Ponce de Leon for the fountain of youth, yet like it the fertile continent it traverses cannot fail to be productive of rich returns in other directions.

Another question upon which new light is to be hoped for, is the dependence of disease upon the structure and developmental history of the part or organ affected. Disease, of course, is simply life out of place, health run mad, pathologic action a mere excess or deficiency of physiologic action, and the varying degrees of development of a given organ in different species can often be shown to determine the disorders to which it is most liable. For instance, the mammalian stomach is essentially a mere sacculation, a local distention in the course of a simple, primitively uniform alimentary tube. Let this distention pass a certain point, however, and we have at once gastric dilatation, (gastromegaly) one of the most obstinate, distressing, and frequent morbid conditions of the organ in our own species. In the carnivora, however, on the one hand, where this physiologic distention has not progressed so far, pathologic dilatation is rare, while in the herbivora, on the other hand, it is not only extremely common, but frequently and rapidly fatal, either from rupture of the already (normally) distended viscus, or from embarrassment of both respiration and circulation by pressure upward of the diaphragm. Again, in the case of the cæco-appendix, appendicitis in the human subject is but an acute (septic) exacerbation of a normal process of wasting and atrophy of this part of the gut, which, as Zuckerkaudl has shown, results in nearly sixty per cent. of cases in its occlusion from the rest of the tube before the fortieth year. And of this charming process we have a proud monopoly. The carnivora are exempt for the good and sufficient reason that they have no appendix (although this region is still a *mauvais terre* and typhlitis is not uncommon) while the herbivora are almost equally so, because in them, instead of a mere "vermiform" remnant, there is present a large, well-developed, and fully functional diverticulum, of equal caliber with the rest of the gut. There appears to be but little hope of our ever having wings in this life or the next—except those of us who are born in Philadelphia—but there is a fair prospect that we may one day get rid of our appendices, which would be a more substantial advantage.

Then again, when a human organ is found peculiarly liable to serious disease, and an examination of the same organ in other mammals reveals an almost equal susceptibility, the inference is strong that this can only be explained by something in the common ancestral history. Take, for instance, the case of the lung, which has already been briefly discussed in these columns. (Medical News, January 11, 1896, p. 49.) Disease of this organ is responsible for nearly one-third of all deaths in our own species; the same thing is true of monkeys, apes, and the carnivora, while its "bad eminence" is only slightly less in the herbivora, and in birds. Now the most striking feature in common in the history of all these beings is their comparative recentness, appearing long after every other organ in the body was perfected except the uterus and mammæ. They are the "parvenus," "les nouveaux riches" of the entire body, and hence the least stable, the most easily upset. Furthermore, it is the special regions of this already unstable organ which are undergoing change in form or atrophy that are peculiarly liable to the attack of disease. In the human species it is the right apex, the disappearing "eparterial" lobe, whose presence is attested by the seventh cervical rib in the embryo, in which nearly forty per cent. of all cases of pulmonary tuberculosis have their origin; in the herbivora, the "lower" (posterior) extremity, which is receding before the huge stomach and food-canal, is the commonest site of tubercle.

In cancer the singular immunity possessed by the domestic animals seems most probably explicable on the ground that their sexual functions continue almost as long as life. Uterus and mammæ do not, therefore, become senile atrophying foci for this process of anarchy. This cuts down the possibility of cancer in the female sex nearly seventy per cent. at once, while, as these animals seldom long survive their teeth, the lip does not become a supernumerary organ, and the tongue a site of sympathetic atrophy as in our own species. The few authentic cases of cancer reported in dogs have had the disease located at that common "unsettled" borderland, the pylorus, where the ancestral gastric mill, or "gizzard," is still in process of disappearance.

Acne, also, that abortive effort on the part of our atrophied hair-glands (miscalled "sebaceous") on the most completely denuded parts of our surface, the face and chest, to reproduce at puberty our ancestral hairy covering is practically unknown in any of the lower animals, for the simple reason that they have no denuded surfaces studded with atrophied glands, but all their hair-glands are fully developed and functional from birth or shortly after. It would even seem as if we might hope for some light upon that pathologic puzzle, diabetes, since the essential condition, an excess of sugar in the tissues, has been discovered in certain plants, notably English violets, causing marked edema and a high degree of susceptibility to the attack of a certain fungus which rapidly proves fatal. Similar results were produced in control-plants by the injection of solutions of maltose into the fibro-vascular bundles at the stem. From which it would appear that even "sweet violets" may actually become "too sweet to live."

An interesting, if somewhat misty, field for comparative study is that presented by the nerve branches which are under "anatomical strain," viz.: the recurrent laryngeal, and the spinal accessory. The former nerve, whose course was laid when the heart was literally "in the mouth" and the trachea-lung a mere ventral pouch from the esophagus and which was dragged down by the descent of the heart is liable, in our own species, to both spasm and paralysis to a degree which has never been adequately accounted for upon the grounds either of position, exposure, or physiologic wear and tear. In the horse, where the "dragging down" has been much greater on account of the greater proportional length of the neck, it is peculiarly liable to paralysis giving rise to the symptom known as "roaring." This is produced by the friction of the air against the vocal bands which cannot be adequately separated to admit a large enough column of air to supply the animal at a high rate of speed and is actually obviated in race-horses by the introduction of a large tracheotomy tube. Its prevalence may be judged from the fact that in the recent St. Leger stakes no less than four out of fourteen starters, among whom was the winner, wore silver tubes in their tracheæ. In the great majority of

cases it is the left nerve, which passes round the aorta and is thus not only further stretched but exposed to the strain of its heavier pulsations as well, which is affected. Curiously enough, in the giraffe, as Dr. Chapman has reported from the careful dissection of several specimens, this nerve is entirely absent, and the superintendent of one of our largest zoölogical gardens assures the writer that the animal is practically voiceless, or at least that in fifteen years' experience with them he had never known them to make a sound other than a grunt or hiss. One is strongly tempted to connect this singular condition with the enormously elongated neck and consequent "stretching," but it may be merely a coincidence.

There seems to be little question of late that the spinal accessory, with its singularly roundabout course from the six upper cervical roots, up through the foramen magnum into the skull, out through the jugular foramen and down to the middle of the sternomastoid nearly opposite its origin, is principally concerned in the production of that distressing and frequent affection, spasmodic wry-neck. Noble Smith declares that in these cases, "section and ablation of a piece of the spinal accessory nerve is absolutely certain to remove all spasm from the muscles supplied by that nerve and very likely to remove spasms set up in other muscles, although other nerves are apparently involved." Here the "anatomical stretching" is due to the development of the neck and consequent subsidence of the shoulder-girdle from the level of the occipital region, and the extreme liability of this nerve to spasm may be a mere coincidence again.

Then again, in the varying intensities of anemia, from simple to pernicious, we have a most perfect series of reversions on the part of the blood toward the lower vertebrate or even invertebrate type. The decrease of red cells, the marked increase of white, the difficulty of maintaining the body-temperature, the appearance of nucleated and even oval red cells (salamandroid), the increase of uric acid, all point in this direction. This is, of course, the merest outline sketch of lines which it might be useful to follow in this work; others will suggest themselves to everyone. The diseases which are common to or communicable between man and animals, the infections of meat, milk, fish, and vegetables, are of immense interest and importance and are already claiming the attention of a host of skilled investigators. The keynote of comparative pathology is simply that we are a part of all that ever was, that the life of all the ages flows in our veins, and that even in our diseases may be read our pedigree. And its dominant overtone, strange as it may seem, is one of consolation, that the very same processes which make for pain, for disease, and death, also make with tenfold force and frequency for comfort, for health, and for life; that there is no such thing as essential evil in the physical world, whatever there may be in the spiritual.

Woods Hutchinson, M.D.

ECHOES AND NEWS.

Sir Spencer Wells' Successor.—The Queen of England has appointed Mr. Rickman John Godlie, F.R.C.S., Surgeon to the Household in Ordinary to Her Majesty, in place of Sir Spencer Wells, resigned.

Medical Service of the Paris Exposition.—Dr. Gilles de la Tourette has been appointed physician-in-chief to the Paris Exposition, to be held in 1900. There will be an exhibit of objects illustrating the progress of medicine and surgery.

Dr. Samuel Johnson on the Nude in Art.—Dr. Johnson was not a medical doctor, but one of his sayings was worthy of such an one. It was on the nude in notable paintings of his time. "Sir," said Boswell, "do you consider Mr. Opie's naked Venus indecent?" "No, sir," was the answer, "but your question is."—*Boston Herald.*

Hospital Surgeon Suspended.—The Governors of the Sale Hospital, Victoria, Australia, after investigating the complaint of a patient against an honorary surgeon for want of skill and rough handling, voted to suspend him. It was found that, without consultation or trained assistance, the surgeon had performed an operation upon the patient's penis, refusing to use an anesthetic.

Eucain and Cocain Compared.—In a paper based upon an experimental investigation of the relative effects of these kindred drugs, which Professor Charteris presented to the Royal Society of Edinburgh, he concluded that in aqueous solutions of the hydrochlorates slightly larger doses of eucain were necessary to produce lethal effects in guinea-pigs, and its physiological action was slower in onset and less in intensity.

Ophthalmia in Poor-law Schools of London.—The Local Government Board has appointed Dr. Sydney Stephenson

to officially inspect the eyes of 20,000 children in the poor-law schools in its effort to free their wards from the fearful consequences of ophthalmia. In 1874 Mr. Nettleship claimed that eighty per cent. of these children were so afflicted, while at present it is thought the percentage is less than ten.

Gifts to Charity.—By his will, John W. Gadsden, a well-known veterinary surgeon of Philadelphia, has ordered the major part of his estate, valued at $50,000, distributed among the several charities of that city. A special bequest of $5000 is made to establish a free bed, to bear his name, in the Protestant Episcopal Hospital. The apportionment of the remainder is left to the judgment of his executors.

The Penalty in French Quarantine.—Death is the penalty for breaking through quarantine in France, according to a law passed in 1822 and still in force. A peasant from the Pyrenees who had returned from Buenos Ayres in a yellow-fever ship and had scaled the lazaret walls at Pauillac in order to get home sooner, has just been on trial for his life at Bordeaux. Though his offense was clearly proved, the jury naturally acquitted him.

Legal Measures Threatened.—It seems that the Harvard Evening Medical College and Hospital, of Chicago, has, without authority, announced Professor Edwin Klebs, M.D., as occupying one of its chairs. Professor Klebs has warned it that unless the catalogues containing this announcement are suppressed, he will institute legal proceedings. It is against the same college that Harvard University was recently seeking an injunction to prevent the use of the name Harvard.

Hebrew Medical Men and the Moscow Congress.—By reason of the laws of Russia, which discriminate so severely against Hebrews, it was found that all medical men of that race would be prevented from attending the International Medical Congress. A strong communication to the authorities of the Congress, from the German profession, headed by Professor Virchow, has caused the Government to suspend the act as it applies to the visitors to the Congress. It is provided, however, that the passports presented by Jewish members shall be countersigned by a Russian consul.

Antivenene.—One of the most interesting scientific questions of the year was brought to the general notice of the profession by Professor Fraser's paper before the British Medical Association upon the antidotal treatment of serpent poisoning by serum, and perhaps more clearly still, in a lecture upon the same subject by Dr. A. Calmette, of the Institut Pasteur, Lille, before the Royal College of Physicians and Surgeons. The practical value of "antivenomous serum" is already being tested in India, with most favorable preliminary reports.

Privacy for Medical Councils.—A suggestion made by the *Medical Press and Circular* strikes us at this distance as a very appropriate one. It is that hereafter it would be more in keeping with the time-honored dignity of the profession and better for its well-being and good name if all medical societies (the British Medical Association included) would conduct their ethical sections in secret, or at least with such privacy that the lay press would be deprived of the opportunity to magnify their occasionally unsavory or sensational proceedings in its daily columns.

An Overcrowded Hospital.—Dr. John A. Arnold, the medical superintendent of the Kings County Hospital, at Flatbush, is reported to have made the following statement: "No more patients can be received unless we put them on the roof. A condition similar to that existing here cannot be found, probably, in any other hospital in the civilized world. To say that the building is overcrowded does not describe the actual state of things. It is packed with patients from cellar to attic. It has been out of the question to give each patient a cot. We have to place two cots together so as to make one bed, and three patients are crowded into it. We also have beds on the floor. Why, we even are compelled to put the sick people in the basement. Our great city permits 635 charity patients to be crowded into a building that can accommodate only 250 comfortably."

Dark Light.—This is the term employed by a French savant, M. Gustave Le Bon, to denote the photogenic action exerted by the light of a kerosene lamp, an Auer burner, through a sheet of lead, on copper, upon a sensitive plate placed under a negative. The results of the first experiments have since been amply confirmed, and in some instances exceeded by other investigators, especially M. Murat of Havre, who has obtained by this means pictures precisely similar to those brought out under the Röntgen rays. Specimens were exhibited at the last meeting of the Paris Academy des Sciences, and the descriptions read like fairy tales. The most surprising fact in connection with this discovery is that the thickness of the metal or other opaque substance interposed between the light and the negative seems to have no effect upon the success of the photograph.

Pleuritic Fluid Substituted by Saline Solution.—Lewaschev first proposed this plan of treatment at the Berlin International Congress. According to the *Therapeutische Wochenschrift*, June 28th, his subsequent success has been marked, and he feels impelled to recommend his plan in stronger terms. His method, in brief, is to substitute an equal amount of saline solution for the pleuritic effusion, and he has now a record of fifty-two cases, all followed by marked relief and prompt recovery. Thoracocentesis is first performed, and as the effusion is gradually aspirated it is replaced by physiologic salt solution, which prevents too rapid expansion of the organs into the empty pleura, while the solution is gradually absorbed and exerts a general tonic and local antiseptic effect. The journal above referred to devotes ten (10) pages to a complete résumé of the results and technic of this treatment.

Music in a State Asylum.—Dr. Sylvester, superintendent of the Kings County Hospital for the insane, has hit upon the idea of forming an orchestra out of the employees and inmates of the institution. For some time the superin-

tendent has been trying to get up some sort of a diversion for the patients, and he was interested to learn, several weeks ago, that not a few of his patients were both fond of music and capable of its production. He called for recruits from the army of employees and patients, and soon had a band of sufficient number and unexpectedly good quality. Some of the patients lend themselves readily to the new diversion. A young man twenty-eight years old, who suffers from an acute form of delusions, has become an accomplished artist on the tuba. An orchestra of eighteen pieces will soon be organized, and the players will begin regular rehearsals for the winter entertainments. Thus will the monotonous routine of the long winter months be materially relieved by this new departure. At short intervals Dr. Sylvester plans to give dances, concerts, and other entertainments, in which the musical feature will be given prominence.

Obituary.—William C. Benedict, M.D., a retired senior practitioner of Brooklyn, died August 17th, aged seventy-six years. At the time of his demise he was spending the summer at Pine Hill, New York. The cause of his death is assigned to have been due to heart failure, brought on by the intense heat of the previous week. He was born in Schenectady in April, 1820. He graduated from Union College in 1840, and then from the University of Pennsylvania. After his graduation he became connected with the Blockley Hospital for the Insane in Philadelphia, where he rose to the position of chief physician, and remained two years. He then became one of the managers of the insane asylum at Poughkeepsie, N. Y., which place he filled for about a year. In 1844 Dr. Benedict moved to Brooklyn and became prominent during the cholera plague. He is said to have treated the first cholera victim, and was successful in saving his patient's life. Dr. Benedict is survived by two sons and two daughters. His wife died in 1894.—Jerome Cochran, M.D., University of Nashville, and Vanderbilt University Medical Department, Nashville, Tenn., class of '61, died in Montgomery, Ala., August 18th, from chronic nephritis. He was a member of the American Medical Association, State Health Officer of Alabama, as well as a member of the following organizations: American Public Health Association, Alabama Medical Association, and State Board of Medical Examiners. Dr. Cochran was one of the foremost sanitarians in the medical profession, and was the instigator and promoter of all the recent sanitary enactments of the legislature of his State. He was also an ardent advocate of a National Health Bureau. He was a recognized authority on yellow fever, and wrote exhaustively upon that subject.

SOCIETY PROCEEDINGS.

BRITISH MEDICAL ASSOCIATION.

Sixty-fourth Annual Meeting, held in Carlisle, England, July 28, 29, 30, 31, 1896

(Continued.)

SECTION ON OBSTETRICS AND GYNECOLOGY.

On Thursday, July 30th, DR. AMAND ROUTH opened the discussion on

SECONDARY PUERPERAL HEMORRHAGE,

which he defined as that which occurred after the doctor had left the house and after firm uterine contractions had once occurred. Whether concealed or external, he regarded retained portions of placenta or membranes as the most frequent cause, although it might occur from inertia or detachment of thrombi. Other speakers suggested as possible causes bleeders, intrauterine fibroids and distended bladder. The treatment suggested was emptying the uterus, bimanual compression supplemented by hot douches, and the hypodermic injection of ergotin. Dr. Donald said that he had seen several cases of free uterine bleeding with toxic symptoms about the ninth day, from overfeeding and constipation. For these he recommended purgation. Intravenous injections of saline solutions were suggested for cases of exsanguination. Compression of the abdominal aorta is sometimes advisable. The importance of curettage was also mentioned.

DR. BERRY HART read an interesting paper upon

THE SYMPTOMS AND NATURE OF THE SO-CALLED FLESHY MOLE,

which was illustrated by diagrams and specimens. Dr. Fothergill remarked that the terms "blighted ovum" and "fleshy mole" might be applied to two varieties of missed abortion, but in the latter the effusion of blood, which was absent or unimportant in the former formed a clot and was gradually organized. Dr. Cameron showed a preparation of the fleshy mole with an early embryo, and indulged in some remarks upon the medico-legal aspects.

DR. JOHN D. WILLIAMS presented a paper on

ANTI-STREPTOCOCCIC SERUM IN THE TREATMENT OF THE PUERPERAL SEPTICEMIA.

In the cases reported it gave unsatisfactory results.

On Friday, the 31st, the subject for discussion, presented by DR. MILNE MURRAY, was

THE RELATIVE ADVANTAGES OF FORCEPS AND VERSION AS A MEANS OF EXTRACTION IN CASES OF MODERATE PELVIC CONTRACTION.

In illustrating the methods of instrumentation, Dr. Cameron showed Smellie's first pair of wooden forceps. Dr. Murray's advocacy of axis-traction was generally commended by the several speakers.

DR. CHRISTOPHER MARTIN then read a paper on

HEMATOMETRA AND PYOMETRA,

based upon six cases. He stated that he had never met a case of hydrometra, but that accumulation of blood or pus in the womb was rare, dangerous, and difficult.

Dr. Cameron presented a paper on retroversion of the gravid uterus, with a new method of treatment, and Dr. Fothergill read a paper on Walcher's position, in which he recalled the fact that years ago Matthews Duncan had described and figured the nutation of the sacrum.

SECTION ON PATHOLOGY AND BACTERIOLOGY.

On Thursday the proceedings opened with a paper by DR. J. S. HALDANE upon

COAL-GAS POISONING.

In recent investigations he discovered that carbon monoxid was not a protoplasmic poison, like carbon

dioxid, but acted simply by preventing oxygen from combining with hemoglobin. He said that a great public danger was developing in the tendency of gas companies to adulterate their coal-gas with water-gas. The supply now often contained from eighteen to twenty per cent. of the latter instead of five or six per cent.

Dr. Alexander Scott spoke of the effect of the "clear gas" found in ammonia factories, which consists of the two oxids of carbon, in its effect upon the nervous system. Dr. Haldane, in further discussion, stated that it was useless to give oxygen to patients when more than an hour had elapsed after exposure to the gas.

Professor Fraser's paper on

THE LIMITATIONS OF THE ANTIDOTAL POWER OF ANTITOXINS

was next read, though the author was not present. He gave an account of his methods of standardizing antivenene, and gave as his opinion that the reaction of this substance was due to the formation of a chemical antitoxic product in the blood. With this view Professor Calmette differed, and thought it due to the susceptibility of the protoplasm of animals to the toxins of venom.

Dr. Risien Russell followed with a contribution to our knowledge of afferent and efferent tracts in the cerebellum, in which some facts relating to the influence of that organ upon the cerebrum were extremely well brought out.

On Friday the discussion was less active. The first subject presented was

THE RELATION OF THE MORBID CONDITIONS ASSOCIATED WITH THE PRESENCE OF STREPTOCOCCI.

Dr. Woodhead spoke of the great prevalence of microörganisms in explaining the vast number of diseases caused by them. Six varieties of streptococci were recognized from the difference of their products, their structure and appearance being the same. He spoke of the virulence of cultivated cocci produced by Marmorek's method, and suggested that the varying conditions of the tissues might account for the difference in virulence developed from the same organism in different cases. He said that each streptococcus is capable of existing in two forms—first as a saprophyte, when all of its energies are devoted to the production of its kind, and secondly as a parasite, when it is fighting for its own existence. It is in this latter phase that toxins are elaborated. Dr. Muir suggested that the only real test of the identity of two microörganisms was to immunize with one and observe if injection of the other was ineffectual.

Section of Ophthalmology.

This Section was introduced on Wednesday, July 29th, by an address from the president.

THE PATHOLOGICAL ANATOMY OF VARIOUS TISSUE CHANGES AT THE MACULA LUTEA, AND OF CERTAIN FORMS OF KERATITIS

was presented by Professor Nuel of Liege. This was a most important contribution, and in his microscopic demonstrations of albuminuric retinitis, glaucoma, and detachment of the retina, marked changes were shown in the layer of Henle. In some cases the edema of this layer was limited to the macula. He further showed that in toxic amblyopias, contrary to the common opinion, the primary change was in the macula, and the nerve changes were in the nature of ascending degeneration. The view that this condition is due to a retrobulbar neuritis must, therefore, now be given up. The specimens relating to forms of keratitis were not wanting in interest.

The paper upon

THE PATHOLOGY AND BACTERIOLOGY OF PURULENT KERATITIS,

by Professor Uhthoff and Dr. Axenfeldt, was presented, in which they regarded *ulcus serpens* as due to an infection of Fraenkel's pneumococcus.

Dr. Cecil Shaw read a paper recounting

EXPERIMENTS MADE UPON THE CORTEX OF THE OCCIPITAL LOBES IN MONKEYS.

Hemiopia was noted in all cases.

THE OPERATIVE TREATMENT OF HIGH MYOPIA

was presented by Mr. Lawford, who stated that eyes with less than 11 D. or 12 D. of myopia were unsuitable cases for operation, and the use of this method should be governed, in a large degree, by the health, social environment, and duties of each patient, as well as the condition of the eye itself. Van Hippell had reported cases of successful operation upon eyes presenting 35 D. to 50 D., and it might, therefore, be concluded that there was no limit to the degree of error suitable for this method, provided the condition of the eye itself was favorable. In the lens extraction he had abandoned the preliminary iridectomy as the circular pupil was more important in these cases than in those of senile cataract. Only four out of sixty-eight cases operated upon gave an unfavorable result. Mr. Cross regarded detachment of the retina as due to senile changes rather than myopia, and related his experience with the operative treatment of the latter. Mr. Percival demonstrated by optical formulæ that in aphakia the posterior pole of the eye should be situated 31.1 mm. behind the cornea in order that the eye should be emmetropic. In closing this discussion Mr. Lawford presented the question as to whether a child of ten years of age with 8 D. or 9 D. of progressive myopia should be operated upon, or should wait for further development of the error, the unfavorable pathological changes continuing meanwhile.

On Thursday, Dr. Maxwell of Dublin, presented a paper based on one hundred and sixty-eight cases of

CONVERGENT SQUINT,

in which he discussed precision in squint operations. Seventy-one per cent. of these cases occurred before the age of three years, and the average refraction of each eye was + 3 D. The average degree of squint measured in angles by the perimeter was 30°. In fifty-seven cases a simple tenotomy was performed, which reduced the squint on the second or fourth day after the operation by 17.5°. When again tested, on the fourteenth day afterward, the reduction was found to be about 15°. When the sound eye was subsequently tenotomized, the final retraction was found to be greater than the primary. He then described a new method of operating for which a special

instrument was necessary, which showed on a scale how much the tendon was raised from the globe, and was intended to indicate, during the operation, how great a shortening might be anticipated. The amount of squint that an eye should have when entirely due to hypometropia was 3° for each diopter. Professor Landolt pointed out that squint depended essentially upon the innervation from the convergence-center, and not upon an anomaly of the converging muscles, and said that the credit for cure was rather to be attributed to the *vis medicatrix naturæ*, than to the surgeon who set back a muscle a definite number of millimeters. The object of the surgeon should be to strengthen the weak muscles rather than to weaken the strong. An advancement operation, therefore, is preferable to a tenotomy. In closing, Dr. Maxwell said that he allowed 5° of squint to remain when operating.

SNELLEN'S OPERATION FOR EXTRACTION OF SENILE CATARACT

was then discussed in a paper by DR. BERRY. The special feature of the operation was an incision occupying half the corneal margin with a large conjunctival flap. He recommended the operation strongly, stating that the anterior chamber was usually reformed in an hour or two, and that prolapse of the iris did not occur except occasionally during the operation, when it was easily replaced. Mr. Cross of Bristol, thought healing took place more readily when the conjunctival flap was made, but found the hemorrhage sometimes troublesome.

Evisceration was advocated by Mr. Bickerton.

MR. LAWFORD read a paper upon

THE FORMATION OF AN ARTIFICIAL PUPIL BY EXTRA-OCULAR IRIDOTOMY,

an operation devised by Schöler.

THE CURE OF OBSTRUCTION OF THE NASAL DUCT

was discussed by MR. BICKERTON, who advocated the use of hollow silver stiles, which were suggested by Dr. Fox of Philadelphia. These might be worn for years without discomfort.

On Friday DR. MAXWELL read a paper treating of the

EFFECTS OF NASAL OBSTRUCTION ON ACCOMMODATION.

He gave details of five cases in which cure of accommodative asthenopia followed treatment directed to the nasal passages alone. He thought the condition was brought about by reflex nervous influences traveling through the fifth and long ciliary nerves. Dr. Batten discussed the relationship between the two conditions, which he had frequently observed.

DR. EDGAR STEVENSON presented a paper upon

THE TREATMENT OF CORNEAL OPACITIES BY ELECTROLYSIS.

He used a current of ¼ to ½ milliampere and a pressure of 3 volts. The anode was placed on the cheek of the opposite side, and the cathode, consisting of a smooth silver probe, was applied to the corneal opacity and gently moved over the surface. An amperemeter and rheostat should always be used, and great care exercised that the current does not exceed ½ milliampere. Cases illustrating the success of this method were presented. Not more than fifteen consecutive applications should be made, as there was danger of softening the cornea.

DISEASES OF CHILDREN.

The first subject discussed was

THE ELEMENTS OF SUCCESS AND FAILURE IN TRACHEOTOMY IN CHILDREN,

by DR. CAMERON. One of the first elements upon which success might be based was that of late operation, in his estimation, because in the latter stages there was less danger of wound infection, and the case was more nearly convalescent when the operation was done. By strict conformity to the middle line, bleeding was more readily avoided, and a clear view of the tracheal rings should be gained before opening the wind-pipe. The speaker had observed two cases of prolapse of the thymus gland into the lower angle of the wound. Mr. Tubby suggested that age was an important factor in the success or failure of tracheotomy, a patient under one year of age seldom recovering, and the prospect of success rising with every year of the child's life. He regarded it as important that the head and neck be kept in a straight line, and that the retractors be assigned to one person only. The tube should be permanently out of the throat by the fourth day at the latest. He also advocated the removal of the silver tube after the first day, and replacing it by a rubber one, which should be worn only a few days. Dr. Simpson was interested in Dr. Cameron's suggestion of late operations. Dr. Renton expressed a highly favorable opinion of intubation, which he had practised with success. The steam-kettle was condemned as reducing the vitality of the child.

DR. HUNTER MACKENZIE presented a paper on

PAPILLOMA OF THE LARYNX IN CHILDREN.

On Thursday, July 30th,

SPORADIC CRETINISM

was introduced as the subject for discussion, in which DR. PARKER first took part, and exhibited the photographs of forty-eight cretins which he had collected. Dr. Thomson of Edinburgh, demonstrated by photographs great improvement from the thyroid treatment in children, less in adults. Mr. Victor Horsley showed a slide illustrating a case of intrauterine rickets in a case of cretin. Dr. Beach spoke of the causation, a neurotic inheritance being a chief factor. As to sex, in a collection of cases made by him, forty-three were males, and seventy-three females, which contrasted with the relative frequency of occurrence of myxedema. In sixteen cases examined *post-mortem*, there was absence of the thyroid. Dr. Thomson further mentioned that his cases, treated by the fresh gland, did better than those treated by the tabloids.

On Friday, Dr. JOHNSTONE CAMPBELL presented a paper entitled

THE ADVANTAGES AND DISADVANTAGES OF USING STERILIZED MILK.

Heat he considered the only safe treatment to render milk germ-free. The advantages of raw milk were that the fats were more digestible, the salts more assimilable,

and the casein more digestible, and the taste nicer. The disadvantages were the risks of contamination with germs of disease. To prevent the latter, he gave extended directions as to the care of cows and the dairy in general. Dr. Coley regarded the tubercle bacillus the first and greatest menace in the use of raw milk. Dr. Carmichael considered that they were far behind Continental and American methods, and hoped the discussion would pave the way for a more active public knowledge of this subject, and the provision of centers where sterilized milk could be procured. He regarded Pasteurization of milk as sufficient for all ordinary purposes. Dr. Church urged that milk sugar should be the only sugar added to milk, as it was better for the child.

BACTERIOLOGY OF INFANTILE DIARRHEA,

was the subject of a paper presented by Dr. Macfayden, and

IMPERFORATE RECTUM,

was discussed by Drs. Ross and Simpson.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, June 15, 1896.

The President, Joseph E. Janvrin, M.D., in the chair.

J. Lewis Smith, M.D., read a paper entitled

REMARKS ON NASO-PHARYNGEAL INFLAMMATION.

(See page 225.)

DISCUSSION.

Dr. Francis J. Quinlan said that in all cases of nasopharyngeal inflammation it was important to determine by a careful local examination the parts which were affected by the disease. It was well, therefore, to explore the entire length of the nasopharyngeal tract. It was a fact that many of the cases of more or less chronic diseases were due to nasal stenoses of one variety or another. To determine the exact location of the stenosis required a careful exploration, and for this purpose it was generally necessary to make a preliminary application of cocain to the mucous membrane. Sometimes we found cartilaginous hypertrophy, sometimes polypous growths, and sometimes various other conditions giving rise to stenosis.

The nose had four functions to perform: (1) to purify and filter the air inhaled; (2) to saturate the air with moisture; (3) to warm the air; and, (4) to act as the organ of smell. It could be seen, therefore, that the nose had a very important part to perform in rendering the air inhaled of a suitable condition to be taken into the lungs. If there was any obstruction in the nasal tract the air inhaled was taken in through the mouth, and the most serious consequences were liable to result.

If there was no obstruction of the nose itself there might be some interference in the naso-pharyngeal space. One of the most frequent of these was a chain of masses of adenoid, or, more properly, lymphoid tissue, making a complete circle at the base of the tongue. By means of this obstruction the whole physiological process of breathing was converted into a pathological one.

As a result of neglect to remedy this condition we saw numberless children with open mouths and expressionless countenances, whose mental development was seriously interfered with. Such children always slept badly and were liable to attacks of croup, to nocturnal enuresis, to diarrhea, and various digestive disorders, and to a large number of neurotic conditions, including chorea. The nose was the gateway to the lungs, and if it did not properly fulfil its functions the individual must inevitably suffer. If it were asked why a child with such obstruction should have attacks of croup, etc., at night, and not in the daytime, the answer was because at night the nares were more constricted. The blood vessels were interfered with, there was pressure at the base of the brain, and the sphincters were relaxed.

As a rule, children with this adenoid obstruction bolted their food. In consequence, the process of digestion was usually interfered with, and rachitis, with its pigeon breast and long train of attendant evils, was exceedingly apt to be developed. Moreover, many of the serious conditions, which are met with in adults, were simply the results of nasopharyngeal obstruction during childhood. Of course, there might be traumatisms, but it was a fact, unfortunately, that the obstructive conditions here referred to were too frequently overlooked until almost irreparable damage had been done. In his paper, Dr. Smith had treated of diphtheria and various other acute diseases which had their primary seat in the nasopharyngeal tract. It could be readily seen that a disordered tract was only too ready to receive infections from whatever source, and that a child which did not breathe properly (whether the obstruction was due to enlarged tonsils, adenoid proliferation, or other trouble), would be much more liable to contract such acute diseases than one whose respiratory apparatus was in a normal physiological condition. He had no doubt also that the various forms of malignant disease are more easily contracted by individuals whose nasopharyngeal tracts were diseased.

Dr. J. R. MacGregor said that his own observations corroborated the experience of Dr. Quinlan, and he had only one or two reflections to present the effect of acute inflammations, as represented by diphtheria, influenza, etc., on the nasopharyngeal passages was of more importance, he believed, than was generally supposed to be the case. Having personally gone through several attacks of influenza (one of them last autumn), he appreciated very thoroughly the peculiarly irritating character of the mucous and muco-purulent discharges which were so distressing to the patient suffering from that disease. His own experience led him to substantiate the statements of Dr. Smith as to the importance of thoroughly cleansing and disinfecting the cavities in these acute disorders. Another fact which he had observed was that they led to a peculiar form of rhinitis, which is liable to become chronic, and in children, especially, to atrophic rhinitis. At the Metropolitan Throat Hospital, with which he was connected, he had been surprised at the comparatively large number of children, of eight or nine years of age (sometimes even of only six), who suffered from atrophic rhinitis. The importance of being alive to the liability of this danger, seemed to him to be very great. If proper treatment were commenced early enough, many could,

no doubt, be saved from ozena. It had formerly been supposed that atrophic rhinitis followed in the wake of hypertrophic rhinitis, but this was certainly not the case, especially in the young.

Another speaker said that the statements made by Dr. Quinlan seemed to him to be somewhat confusing. The doctor had attributed all sorts of disorders to adenoid disease, but his opinion was that, while undoubtedly it did sometimes cause these reflex troubles, it was only one of a variety of causes. When, therefore, we operated for the removal of this adenoid tissue, we should make it a point never to guarantee relief to our patient, since there might be some other factor at the bottom of the trouble. He then proceeded to speak of the treatment of acute nasopharyngeal catarrh, or ordinary "cold in the head." During the past winter, both in private and hospital cases, he had tried all of the various remedies, which have been lauded in this condition, and he had found that, one by one, they had failed in the test. Among the agents which he had employed were quinin, tartar emetic, squill, antiseptic douches, eucalyptus, menthol, etc. Only a few patients who were the subjects of cardiac disease and were resting in bed got well in a marvelously short time. This result, he thought, could be attributed only to complete rest in bed and to massage, which was practised three times a day. In addition, the room occupied was kept at an even temperature. All these patients recovered from their catarrh within about forty-eight hours.

If the patient could not, or would not, rest in bed, local treatment might be resorted to, but it did not seem to make much difference what agent we used in the nasal douche. Salt and hot water, borax, boracic acid, or salicylate of soda, in the proportion of a dram to the pint, would do as well as anything else. The patient should always be carefully warned against allowing any of the fluid to get into the Eustachian tube. To avoid this, the vessel containing the solution used should not be held higher than six inches above the nose, the head should be held forward, with the mouth open, and the patient should resist the first tendency to swallow the liquid. It would be found that the frequent removal of the discharges would afford a great deal of relief. Sometimes when the nares were very much obstructed, it was desirable to inject into them a one per cent. solution of cocain at the commencement of the treatment, but this should always be done by the physician himself. Later, such agents as menthol, benzol, etc., might be resorted to with more or less benefit. General treatment was unimportant, except in cases not treated by rest at the outside. The most important class of remedies were tonics, such as cod-liver oil, malt extracts, etc.

Dr. Smith, in closing the discussion, said his chief object in writing the paper, which he had read, was to elicit the opinions of specialists upon the importance of nasopharyngeal inflammations which the general practitioner often overlooks or considers secondary. What he had heard had confirmed him in his opinion in regard to their importance and the necessity of local measures either alone or in conjunction with constitutional treatment.

At the social reunion after the meeting, which was the last one of the Association before the summer vacation, remarks were made by ex-Presidents John Shrady, S. B. W. McLeod, J. R. MacGregor, and George T. Harrison.

CORRESPONDENCE.

THE MEDICAL NEWS AND QUACKERY.

To the Editor of THE MEDICAL NEWS:

DEAR DOCTOR: It is a pleasure to express my thanks and gratitude for the vigorous opposition you have made to the experiment of treating inebriety by secret drugs at Bellevue Hospital. A similar criticism and denunciation of gold-cure specifics by two London journals broke up a great charlatan scheme, and received the warmest praise and endorsement of the British medical public. An independent medical press, not afraid to expose frauds and defend common-sense views of practical medicine, is always welcomed by the profession. The NEWS, by its just criticism of this matter, has won an enviable place in medical journalism, which, I am sure, will be remembered for a long time to come.

Again thanking you, believe me

Yours truly,

T. D. CROTHERS, M.D,

HARTFORD, CONN.,
August 22, 1896.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE, FOR THE 16 DAYS ENDED JULY 31, 1896.

CARTER, H. R., Surgeon, directed to inspect Marine Hospital at Tampa, Fla., July 28, 1896.

PECKHAM, C. T., Passed Assistant Surgeon, directed to report to Surgeon Godfrey, Chairman of Board for Physical Examination, July 24, 1896.

BROWN, B. W., Passed Assistant Surgeon, granted leave of absence for six days, July 23, 1896.

STEWART, W. J. S., Passed Assistant Surgeon, granted leave of absence for four days, July 17, 1896.

DECKER, C. E., Assistant Surgeon, to proceed from Battle Creek, Mich., to St. Louis, Mo., for duty, July 21, 1896.

PROCHAZKA, EMIL, Assistant Surgeon, granted leave of absence for twenty days, July 23, 1896.

BOARD CONVENED.

Board convened to meet at Port Townsend, Wash., for the physical examination of Passed Assistant Surgeon C. T. Peckham, Surgeon John Godfrey, Chairman; W. G. Stimpson, Recorder, July 24, 1896.

PROMOTION.

BANKS, C. E., Passed Assistant Surgeon, commissioned as Surgeon, July 27, 1896.

DEATH.

FESSENDEN, C. S. D., Surgeon, died at Salem, Mass., July 23, 1896.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 28, 1896, TO AUGUST 3, 1896.

The leave of absence, on account of sickness, granted Major James C. Worthington, surgeon, is further extended one month, on account of sickness.

Leave of absence for one month, to take effect on or about August 5, 1896, is granted Major Henry McElderry, surgeon, Fort Robinson, Neb.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

HOW CAN SUPPURATION BE BEST PREVENTED IN ACUTE PELVIC INFLAMMATIONS?[1]

BY WM. R. PRYOR, M.D.,

OF NEW YORK;

PROFESSOR OF GYNECOLOGY IN THE NEW YORK POLYCLINIC, CONSULTING GYNECOLOGIST TO THE CITY HOSPITAL.

I SHALL not treat of those forms of pelvic inflammation which arise from disease of the pelvic bones, from bowel disease, or from other causes which are operative in men as well as women; but shall confine myself strictly to those inflammatory conditions which arise from causes extending through the uterus.

In the earlier application of laparotomy to the treatment of inflammatory diseases of the uterine adnexa, conditions were met with which could only be treated by removal of the affected parts. The subjective symptoms were of the most distressing nature, and examination demonstrated an extensive involvement of the pelvic peritoneum, together with ovarian and Fallopian disease. Having obtained marked success in removing the grosser evidences of chronic pelvic inflammation, as pyosalpinx, hydrosalpinx, etc., we began to apply the radical operation of laparotomy to the treatment of the more acute forms of tubo-ovarian disease. Just here we made a mistake.

I had met with a number of cases of gonorrheal infection of the uterus and tubes in which nature apparently affected a cure; certainly, disagreeable symptoms disappeared, and examination showed no marked pelvic lesions. Applying to a consideration of these inflammations observation made in the study of the extension of infection in other parts of the body I began to seek for some means to assist in the cure of these cases. The idea struck me that I might here apply the surgical rule that stopping the supply of infectious material conduces to a cure of its complication and prevention of extension; and in 1891 I began to curette the uterus for acute salpingitis and peritonitis. The results obtained were startling. A riper experience and more careful observation of my cases have led me to expect a cure (or rather, to retain the idea of my paper, to prevent suppuration) from curettage, irrigation, and the use of antisepsic dressings in one class of cases only, namely, those cases of first infection when seen within a week after extension of the infection outside the uterus. This operation, the advocacy of which brought so much unpleasant criticism upon me, is now the accepted routine procedure in most of our general hospitals.

I have applied it in nearly a hundred cases of acute first attacks and have never seen failure result from it when early applied. If we secure good results from this treatment, where an infection has already extended to the tubes and pelvic peritoneum, it may be presumed that the curettage is indicated whenever the endometrium is infected. My experience has taught me that such is the case. The causes of failure in the hands of others I have traced to the use of strong antiseptics within the uterine cavity, partial removal of *débris*, and incomplete packing of the uterus.

The observation and experience of six years with conservative curettage have taught me to surely expect a complete recovery in cases of acute endometritis with salpingitis and peritonitis when seen early in first attacks.

I do not divide the cases according to the infection, whether septic or specific, but treat all pyogenic infections alike. But there are many cases which are seen late; there are other cases which present an acute process implanted upon a chronic, cases of chronic relapsing salpingitis; and still other cases which have been cured entirely, so far as we can see, by operation years before, but have become reinfected. Although these cases are certainly most acute, it must not be forgotten that previous attacks of tubal and peritonitic inflammation have markedly changed the nutrition of the affected organs.

Suppuration *may* not ensue, but it is likely to. Curettage helps all these cases somewhat, but so many failures to afford entire relief result where curettage alone is employed that more must be done. Henrotin, Chicago, has written very ably upon this subject, and credit for the idea is due him. For two years, in all such cases, I have operated as follows: The uterus is thoroughly curetted and irrigated. All instruments being changed, in a few minutes, the cul-de-sac is opened and a wide blunt dissection made in the vagina

[1] Read by title at the Twelfth Annual Meeting of the Fifth District Branch of New York State Medical Association, held in Brooklyn on May 26, 1896.

and cul-de-sac by separating two fingers. The fimbriated ends of the tubes are opened if found closed. All serous-fluid accumulations are evacuated, and the pelvis wiped dry. No irrigation is here used. I then pack from three to five yards of iodoform gauze into the pelvis, each strip being about three inches wide. The uterus is next tightly packed as is also the vagina. A self-retaining catheter is introduced. On the third day the vaginal gauze is removed, together with that in the uterus. The vaginal gauze is renewed but the uterine packing is not, unless the uterus be large. The gauze in the pelvis comes out in a week or ten days under chloroform and another large pelvic packing is made.

The results of this operation are most gratifying. The lymph which is thrown about the antiseptic dressing disappears in a few months and the uterus becomes perfectly movable. Accidents have never happened to me and I have so far been uniformly successful in preventing suppuration. In several of these cases of relapsing salpingitis I have met with large hydrosalpinx and broad ligament cysts. These were merely incised and evacuated.

So much has of late years been written upon hysterectomy in inflammatory cases that the profession at large has come to believe pretty generally that we gynecologists have nothing else to offer a woman who has pelvic peritonitis other than some mutilating operation. These two operations, one matured, the other new but sufficiently tried, will very effectually prevent suppuration in the pelvis when properly applied. All the criticism which has been put upon the operation of hysterectomy is not merited, but most of it is. He who first sees these cases of pelvic inflammation, folds his hands, orders opium and poultices, and lets the infection run riot in the woman's pelvis, is the man to blame. I consider it an imperative duty to treat pyogenic infection here by surgical means only. Laparotomy is no longer warranted, unless there be pus present, for peritonitis of a distinctly pelvic character. We have in these two operations the means to prevent the wholesale mutilations which we see advertised on every college and hospital bulletin board. But we must get our cases early. The responsibility resting upon the family physician is great. I state it as mildly as I can when I say that the greatest nonsense ever receiving the support of intelligent men was Alonzo Clark's treatment of peritonitis by opium. Pelvic inflammation is due to an invasion from without. One very common result of such infection is production of pus. Nowhere else in the body will the surgeon adopt the stasis plan of treatment of an infection. Incision into the cul-de-sac immediately relieves these women of pain. Very often within twelve hours the bed is soaked with serum, so great is the drainage. The breaking up of adherent lymph-plates opens the mouths of the infection-laden lymph-streams and they pour all their contents into the gauze. These operations take the place of opium and poultices; they do not, by locking up the emunctories, foster infection, but stop it short. I feel that I have something between the poultice or ice-bag and the horrible hysterectomy. I believe I can nearly always prevent suppuration.

I cannot too strongly urge you to apply to the acutely inflamed pelvis of a woman those general surgical principles which are embodied in the two procedures of (*a*) cutting off the primary source of an infection, and (*b*) draining away its results. This is the truest conservatism, for it seeks the conservation of tissue diseased and, at the same time, protects the general economy against the results of diseased processes. Above all, it leaves the woman her menstrual function. These women are symptomatically and physiologically cured, for they bear babies afterward.

In reviewing my experience of the last sixteen years, I believe I can at last see my way to prevent the formation of pus where the tubes and peritoneum are involved; and I feel much gratified upon being able to present these operations to you. For many months, week after week, I have shown these operations to the practitioners who honor me with their presence at my lectures. I have hammered at them with the irresistible arguments, demonstration and result. From among the seven or eight hundred who have gone out, some have tried the cul-de-sac opening where before they used opium. Their letters are indorsement enough. I shall be more than repaid if I can make among you a few converts.

DISCUSSION.

Dr. James H. Etheridge of Chicago, considers that Pryor's operation, as this surgical operation will be designated in the future, has come to stay. It offers the only solution of a most serious gynecological problem. When a woman is infected with gonococci she is almost certain to develop a specific perimetritis before she is freed from this loathsome malady, with its resultant sufferings, adhesions, tubal and ovarian distortions, and hopeless sterility. Thousands of young men acquire gonorrhea, and before marrying their innocent

sweethearts find it agreeable to their convictions of propriety to get rid of the disgraceful disease, as they think they can easily do. Within a few weeks after marriage the poor wives acquire urethritis, cystitis, vaginitis, endometritis, salpingitis, perimetritis, sterility, and broken hearts. The part that has been played by the medical profession has been almost complete inanity in the presence of the wickedly energetic, aggressive gonococcus, whose onward march has not been interrupted one moment. His ravages are checked only when nature throws out a wall of protecting lymph beyond his line of march well up in the pelvis, by which he is permanently picketed from future destructive conquests and compelled to lay down his arms and perish from starvation, after having wrecked the poor woman's life for an indefinite period of time.

Dr. Pryor has exhibited great wisdom in studying carefully the habits of the gonococcus and in presenting to the medical profession a simple, safe, and efficient method of circumventing its method of warfare on helpless women. He goes in above and beyond the progress of this microörganism, and completely and effectively cures this disease in woman for the first time in the history of medicine. Thousands of women who have had gonorrhea are alleged to be cured, but gynecological operators who, later, remove a pyosalpinx from one or both sides, know that they were *not* cured at all. I firmly believe that we rarely *cure* a gonorrhea in women by any of the recommended lines of treatment to-day. Having run the entire gamut of such lines of treatment and found them all sadly deficient in effectiveness, I can but welcome Dr. Pryor's brilliant conception with warmest plaudits, and assure him that he is the author of a means of saving many a woman's life from suffering and a wrecked future.

SERIOUS HEART LESIONS WITHOUT WELL-MARKED CONTINUOUS PHYSICAL SIGNS.

By HENRY L. ELSNER, M.D.,
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THE clinician who depends entirely upon continuous physical signs for the recognition of all cardiac lesions will be likely to overlook numerous cases in which a thorough appreciation and interpretation of subjective symptoms, with occasional and transitory objective manifestations, would lead to a correct conclusion.

There are conditions more important in cardiac diagnosis than the simple recognition of incompetent and stenosed valves, though many of our text-books have not succeeded in making that fact clear to the profession. Experience has demonstrated the great importance to the diagnostician of understanding the true condition of the heart-muscle and of determining with equal accuracy the degree of functional activity.

The progress made during the past few years in the treatment of heart disorders, by methods in which we are particularly interested, has caused me to bring to your notice to-day the subject of "Serious Heart Lesions Without Well-Marked Continuous Physical Signs."

I shall rehearse fully the history of a typical case and confine myself to deductions which seem to me justified after clinical observation and pathological examination of others:

G. S., of Auburn, N. Y., aged forty-six, merchant, consulted me September 16, 1891. He was well-built, well-nourished, with an unusually good muscular development, and a man of exemplary habits. He used tobacco moderately. His family history was negative. He had never been treated for constitutional syphilis, though, when a young man eighteen years of age, he said that he had a little ulcer on his penis, which healed very readily in a few weeks, after which his attending physician told him that further treatment was unnecessary. Though constitutional symptoms had never been noticed, in the light of his subsequent history I have always suspected very strongly that he had syphilis, and treated him in accordance with such suspicion. In 1888 he had a slight attack of muscular rheumatism, for which he went to Mt. Clements, where he rested a few weeks, took the baths, and returned home cured. During the eight years preceding his visit to me, he had been considerably annoyed by a sense of discomfort after eating, in the region of the heart, which followed all hearty meals. This uncomfortable sensation was later accompanied by an occasional shortness of breath, or, as he expressed himself, "superficial and unsatisfactory breathing." If he walked to his place of business after eating, a distance of one-half mile, he had noticed also that his breathing became worse —more labored—and that there was more or less numbness of the left arm, forearm and hand, while his left shoulder became painful until he rested for a few moments, when the pain and numbness completely disappeared. Later actual pain was substituted for the left-sided numbness, and at one time before I saw him he suddenly, after a moderate dinner, while walking to his store, was suddenly seized with symptoms of alarming angina. During this attack his physician, Dr. Cheesman of Auburn was called, who immediately recognized the fact that the patient was suffering from serious disease, though, on physical examination, nothing abnormal could be found. When, on September 16, 1891, Mr. S. consulted me, his appearance was that of a perfectly healthy

man. His only complaint was of the discomfort after eating and the increase of numbness and pain in the left arm during the preceding month, with an increasing sense of weight, causing a feeling of constriction in the upper thoracic regions. His breathing was becoming more and more labored whenever he made the attempt to walk after eating. His friends noticed a growing pallor during the continuance of the dyspnea and pain; at other times his color was good. As time went on, his breathing occasionally became slightly uncomfortable; if he did not walk after eating, this was not associated with numbness or pain in the left arm.

No amount of walking or exercise when the stomach was empty at this time gave rise to dyspnea or symptoms of angina. There was no headache, nor were there eye-symptoms, edema of the extremities, or puffiness of the face. There were no nervous symptoms; the patient slept well, his appetite was good, and his bowels regular. He passed the normal quantity of urine, and during my observation of him repeated examinations of it gave negative results. The anginous attacks were not followed by polyuria. Ophthalmoscopic examination was negative. Reflexes were normal. No hysterical symptoms.

Physical examination on September 16, 1891: Aside from a slight gastrectasia, there were no abnormalities present. A careful examination of the heart showed its outlines to be normal; the heart-sounds were everywhere clear and distinct. There was no broadened area of aortic dulness. The pulse was 70, of good character, with arteries of normal resistance and tone.

Directing the patient to walk uphill for ten minutes and to return for reëxamination, I found no change in the cardiac outlines; the pulse became more accelerated—90 and feeble—while the heart-sounds were less distinct than before; the aortic sounds seemed distant, indistinct, or embryonic, as Nothnagel has characterized them. There was no arhythmia, no complaint of fatigue or dyspnea. As a result of this examination and a consideration of the previous history, I diagnosed myocardial degeneration, in all probability segmentary, of specific origin, and due to arteritis involving the coronaries or their branches.

In the course of a few weeks I had abundant opportunity to observe the patient after hearty meals and to make careful physical examinations of the heart. During this time the symptoms were in no degree relieved by treatment. It was found that from the first of October to the fifteenth the left ventricle was dilated and reached 1 cm. beyond the mammary line to the left; no murmur could be detected. At times the pulse showed marked arhythmia, and the aortic sounds were distant and indistinct. Urine continued normal. Anginous symptoms were increasing on exertion, until it was determined to prescribe absolute rest for a short period in bed. After the rest, on the 6th of November, 1891, the dilatation had disappeared; heart-sounds were distinct and clear. He had no annoying symptoms during the period of his rest, however heartily he ate, and for a short time he considered himself much improved.

He soon gave attention to some of the details of his business and at once experienced a return of his annoying symptoms on exercise after eating. It became evident that any considerable and continuous business worry or exertion of any kind was associated with an increase of symptoms, and these, in turn, with an increased area of cardiac dulness or dilatation. The dyspnea and the pain in the left arm increased. About the middle of November these symptoms appeared independently of the taking of food. We then went to New York and consulted two of the leading diagnosticians of the metropolis, both of whom agreed that the disease was in all probability due to coronary disease and myocardial degeneration. A grave prognosis was given.

He decided to consult two other physicians during his stay in New York. He remained with the first of these consultants three or four weeks, after receiving the positive assurance that he had pseudo-angina, and that there was nothing organically wrong with the heart or its arteries. During this time he was treated dietetically and hydrotherapeutically. Having obtained no relief and lost forty pounds, he consulted another authority, who, after a minute examination, expressed the opinion that he had never seen angina pectoris due to coronary disease associated with myocardial degeneration in a man as young as the patient, and concluded that he had simple dilatation of the stomach, with pseudo-angina. Resorcin, bismuth, and cascara were prescribed, and the patient was sent home, to return to New York in three weeks, when it was confidently expected that he would be much relieved.

About one week later, on the 28th of March, 1892, I was hurriedly summoned to his bedside, where I met Dr. Cheesman, who told me of an alarming attack of angina pectoris, which he had had on the preceding Tuesday. We found the patient with an almost imperceptible arhythmic pulse, 120 per minute, at times more rapid, the cavities of the heart dilated in all directions, the aortic sounds imperceptible, the remaining heart-sounds embryonic and indistinct. There were no murmurs. His extremities were cold, his face was ashen-colored, lips were blue, he was anxious, and seemed to be *in extremis*. Urine was scanty—non-albuminous. He had no pain in the left arm during this attack. It did not seem to Dr. Cheesman or myself that the patient could rally from this condition, but on the following day, I believe, he went out for a ride. On the 5th of April, eight days after my visit, he had a similar attack, in which he died.

I have gone thus fully into the history of this case because of the transitory character of the physical signs (always disappearing after prolonged

rest), the unusually long period of discomfort associated with stomach symptoms following the ingestion of food, preceding the first alarming attack, and the great variety of opinions which had been given by those who were consulted. We were unfortunate in not being able to obtain a *post-mortem*. From *post-mortem* examination in similar cases, there can be little argument against the assumption that there was involvement of the coronary arteries and the heart-muscle.

One of the consultants held that angina pectoris is not likely to occur until long after middle life, and that specific arteritis was out of the question, because of the failure of all antisyphilitic treatment to influence in any way the course of the disease. While it is true that angina pectoris and myocarditis are conditions found in advanced life, it cannot be denied that these diseases, with their underlying obliterating arteritis, may exist during middle life, and clinicians have repeatedly established the truth of this assertion. The majority of such cases are, I believe, of syphilitic origin or hereditary. Our clinical experiences repeatedly show young men with arteries practically old and degenerated.

Oestreich[1] reports a case in which a young man, thirty-two years of age, who had previously enjoyed perfect health, died on the night of his wedding, with all of the symptoms of obstructed circulation and cardiac insufficiency, without symptoms of angina pectoris. The *post-mortem* showed beginning fibrosis of the ascending aorta. Upon an uneven and ulcerated sclerotic spot was found a thrombus, which closed the opening of the right coronary artery, and from the side of this thrombus a prolongation had become detached, which plugged the left coronary.

Porter[2] has shown that complete mechanical closure of the coronary arteries of dogs is always speedily followed by complete arrest of the heart-beat. This is attributed to anemia, which, in its development, must be followed ultimately by profound myocardial change.

The transitory dilatation of the ventricles it has been my experience to note in other cases, in which the dilatation followed strain in a heart already the seat of fragmentation or segmentary myocardial degeneration. In some of these there was an associated valvular lesion; in others, arterial disease. Recession of the dilatation followed rest and rational treatment. Auriculo-ventricular murmurs are occasionally heard during the period of extreme dilatation; as this disappears murmurs are much modified. Systole is stronger and compensatory changes are plainly manifest.

The persistence during so many years of the direct association of anginous symptoms with the ingestion of food and the accompanying distention of the stomach were misleading (though frequently encountered in this class of cases), and seemed to many to justify the diagnosis of pseudo-angina. This condition is rare, and such a diagnosis ought never to be made until all possibility of the existence of true angina with its positive pathogenic factor has been excluded.

Cases of alcoholic myocarditis[3] are common, but are not often recognized in their incipiency. The disease makes gradual progress, but often during the early stage a slightly increased area of cardiac dulness is found, with, as a rule, clear and normal heart-sounds and occasional arhythmia. Only rarely do we hear a faint systolic murmur. We not infrequently find these patients coming to the clinic or to the hospital with dyspnea, slight edema of the ankles, and other evidences of stasis. After a period of rest, with appropriate treatment, the symptoms of weak heart disappear, and it returns to its normal size. The successful treatment of these cases must necessarily include total abstinence from all spirits. We see fewer of these cases in this country than are found in Munich and other cities on the continent where beer is excessively used, but I have learned to recognize a variety of alcoholic myocarditis, the clinical picture of which answers very closely to that described by Bollinger[4] and others. These patients offer little resistance to acute infection, and in most cases readily succumb, especially to pneumonia and other acute respiratory diseases.

During the past few years my attention has been called to both permanent and transitory dilatation and hypertrophy of the heart following severe strain, undue muscular exertion and prolonged worry. In the majority of these cases I think the history will prove that the heart was not normal before the strain. This has been established in all of my cases in which the dilatation and hypertrophy continued permanently, unless the strain was continuous and and the patient had labored under it for a considerable period. See[5] and Rieder,[6] in support of this position, make the observation that in France the country letter-carriers who walk all day suffer no ill effects from their long-continued and, at times, laborious marches, probably because the normal heart, like other muscles, accommodates itself to the work. Rieder (*loc. cit.*) asserts that with a healthy condition of the heart it is exceptional and exceedingly rare to find cardiac insufficiency and dilatation with consecutive hypertrophy following severe bodily

exercise. Spillman,[7] Bernheim,[8] and Thurn[9] make the more positive statement that the normal heart never tires; that in those who are perfectly healthy, in spite of exhausting effort, there is no typical cardiac insufficiency.

Prolonged muscular exertion and consequent strain is, in all probability, an important predisposing factor in the causation of degenerative heart and arterial disease, and if those cases in which there are but occasional or transitory physical signs to lead us, are subjected to such insult, the symptoms soon become continuous and characteristic of myocardial fragmentation.[10]

In the first class of cases to which I wish to call your attention, for days at a time there exist with dilatation marked arhythmia, tachycardia, and alarming intermission of the pulse, with delirium cordis, dyspnea, and all of the other evidences of an organ ready to surrender with secondary involvement of lung and kidney. After persistent effort there has for a time, at least, been a return to apparent health, the heart acting normally, but little dilatation remaining. Some of these cases I have followed for many years and have battled vigorously against repeated attacks.

In the second class of cases we have, for a limited period, symptoms of failing heart-strength, as shown by increasing dyspnea on exertion. There are no cardiac murmurs in most of these cases, but persistent dilatation, with little or no hypertrophy. The pulse remains regular almost to the end, though there is marked tachycardia. The heart shows no tendency to mend. Sudden death follows, as a rule, after the acute symptoms have persisted for a few days or weeks. As the symptoms grow more alarming, we have all the evidences of portal and renal stasis. In these cases there is no preëxisting emphysema. In both varieties there was found marked myocardial change on macroscopic, and more particularly on microscopic examination.

We had, in our pathological examination, given but little study to the appearance of the auricles, the ventricles having received most of our attention. Arhythmia was considered a necessary symptom of fibroid or degenerated heart. Hampeln[11] proved that a regular pulse need not exclude the existence of advanced myocarditis. During the past two years I have seen two cases in which I had opportunity to observe the patients to the end. The first was a man, whom I left with a regular pulse, without a sign of impending danger, ten minutes before his death. The *post-mortem* revealed a thin ventricle, with partial rupture; the microscope gave evidence of advanced ventricular fibroid degeneration. The second case was one of complete rupture, with preceding transitory physical signs, in which there were microscopic evidences of degenerated ventricular walls and advanced coronary disease. The painstaking observations of Radasewsky[12] upon cases of ventricular disease, to which I have found but one American writer[13] refer, make a more exact localization of the lesion in the heart possible during the life of the patient. It must be accepted that Romberg and Krehl[14] were correct in their assumption that automatic and rhythmic action of the heart takes its origin in the muscular fibers, and not in the cardiac ganglia, and that the starting-point of the primary impulse to contraction is in the walls of the auricles, near the opening of the large veins.

Radasewsky's (*loc. cit.*) conclusions seem to prove that the marked irregularity of the heart in chronic myocarditis is due to a localized involvement of the auricles, and cannot be explained by changes found in the ventricles. Thus, the localization and the extent of tissue-change is made possible by a consideration of the character of the pulse and the behavior of the heart-muscle. The degeneration of the ventricles usually associated, as I have remarked, with a regular, but, as the process advances, an increasingly feeble pulse, gives a most unfavorable prognosis, because of the greater strain to which these are subjected.

The changed heart-muscle ofttimes presents a complication entirely independent of the accompanying valvular lesion.[15] We are then likely to have the clinical evidences of heart-fatigue with either diseased coronaries, connective-tissue overgrowth, or parenchymatous changes.

The most recent investigations,[16] bearing upon the anatomical causes of changed and faulty compensation in valvular lesions prove the direct association of these insufficiencies with changes in the heart-muscle consequent upon lesions in the coronary vessels. In those cases in which the valvular diseases of the aorta are due to fibrosis—and the majority of these are—it has been found that the branches of the coronaries, as well as the aorta itself, are the seat of periarteritis and endarteritis. In consequence of these changes, we find circumscribed degeneration of the muscular structure of the heart, even necrosis and ultimate foci of new cicatricial tissue.

With mitral lesions, which are more likely to be of inflammatory origin, the starting-point of the retrograde process is in the coronary veins. The right ventricle is unable to hypertrophy sufficiently, and its muscle is weak, without resistance. There

is obstruction, not only in the venæ cavæ in these cases, but the coronary veins are equally involved in the process; these are dilated, with thickened walls. Banti's (*loc. cit.*) suggestions are rational, and, in the light of anatomical observation and clinical experiences, justify us in considering that with faulty compensation and aortic lesions there is an "arterial," with mitral lesions, a "venous cirrhosis" of the heart. Increasing arhythmia, reduced heart-strength, and progressive ventricular dilatation are accompanied with more audible evidences of auriculo-ventricular incompetence and all of the ordinary symptoms of marked faulty compensation. This alarming condition can, in many cases, be postponed, though it cannot be indefinitely averted, by an appreciation of the existing complication. With valvular lesions, the first and slightest increase of dyspnea, associated with either persistent or transitory arhythmia, the slightest increase of physical signs after exertion, and with these symptoms an increasing area of cardiac dulness, whether permanent or transitory, must lead to the conclusion that the myocardium is becoming insufficient, undergoing, in all probability, degenerative or inflammatory change, requiring rest and active treatment.

When valvular lesions are associated with acute infectious processes, it is not at all uncommon to find clinical and pathological evidences of acute exacerbations of chronic myocarditis; indeed, in some of these cases the evidences of the acute disease of the heart-muscle overshadow entirely those of the valvular lesion.

Stokes,[17] in 1855, held that whatever the cardiac affection, the symptoms depend mainly upon the strength or weakness, the irritability or paralysis, the normal or abnormal condition of the heart-muscle.

Attention must be directed to the variability of the physical signs referable to the heart in many forms of anemia, either due to constitutional disturbances or local asphyxia from coronary disease, and the rapid disappearance of these under favorable environment and treatment.

The history of the cases of paroxysmal tachycardia in which the tachycardia is not a symptom, but is supposed to be an essential disease[18-20] is peculiar. There are sudden attacks of rapid heart-action with a small, thready, easily compressed pulse, and no previous history or physical signs of heart-disease. I have seen patients in these attacks with the pulse reaching far beyond two hundred per minute, at the same time found it regular, with diffuse, but feeble cardiac impulse, and ultimately, after repeated attacks, there was increase of cardiac dulness, due to dilatation, which disappeared with the disappearance of the symptoms.[18]

Dilatation is not a necessary accompaniment of paroxysmal tachycardia,[19] and when it follows is of secondary origin. Bouveret[20] mentions cases without dilatation, while Fritz[22] observed two patients during a period of three years before it occurred. Quincke and Hochhans[23] have had similar experiences. These cases of paroxysmal tachycardia must not be confounded with hysterical palpitation.

Finally, it may be positively asserted that murmurs have been heard occasionally when no organic change was found after death. It can be as confidently stated that organic change was often present when no murmur was audible. Such a case I recently saw, in which there was ulcerative endocarditis. Murmurs disappear for a time, as Fothergill[24] says, "in a perplexing manner." The aortic regurgitant, even, has been absent for distinct periods.[25] Mitral regurgitant murmurs have vanished in cases where the dilated left ventricle has been relieved, and the curtains of the valve consequently become sufficient to close the ostium.

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[4] Bollinger, "Ueber die idiopathische Hypertrophie und Dilatation des Herzens," Stuttgart, 1886, p. 501.

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[12] Radasewsky, *Zeitschrift f. klin. Medicin*, vol. 27, p. 381.

[13] Babcock, *New York Medical Record*, November, 1895, p. 649.

[14] Romberg und Krehl, *Archiv f. experimental. Pathologie und Pharmakologie*, 1892.

[15] Romberg, *Deutsches Archiv. f. klin. Med.*, Bd. 53, Hft. 3.

[16] Banti, *Centralblatt f. patholog. Anat.*, 1795, No. 14.

[17] Stokes, "Diseases of the Heart," etc., 1855.

[18] Bristowe, "On Recurrent Palpitation of Extreme Rapidity in Persons Otherwise Apparently Healthy." *Brain.*

[19] Loeser, "Ueber paroxy-mal. Tachycardia," *Virchow's Archiv*, Bd. 143, p. 648.

[20] Bouveret, "De la Tachycardie Essentielle Paroxistique," *Rev. de Méd.*, Ix., 1889.

[21] Martius, "Tachycardia," Stuttgart, 1895.

[22] Fritz, "Studie über Tachycardia Paroxysmalis," Zurich, 1894.

[23] Quincke and Hochhans, "Beiträge zur Pathol. des Herzens," *Deutches Archiv f. klin. Medicin.*, Bd. 51, 1892.

[24] Fothergill, "The Heart and its Diseases," Philadelphia, 1879, p. 65.

[25] Gairdner, *loc. cit.*, quoted by Fothergill, p. 65, Philadelphia, 1879.

A BRIEF CONSIDERATION OF PSYCHICAL EPILEPSY.[1]

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EPILEPSY still defies the pathologist and baffles the clinician. Although studied and treated since the time of Galen, yet in these days of exact histological knowledge and specialized therapeusis no palpable lesion is discoverable to which the epileptic neurosis is due, and no treatment is known which can be called curative. It still claims as its victims two out of every one thousand persons.[2]

The definition of epilepsy has felt the influence of evolution. It is no longer simply the "falling sickness." Scientific observation has caused a considerable modification of the easy dictum of quaint William Buchan,[3] who wrote, seventy-five years ago, "the epilepsy is a sudden deprivation of all the senses, wherein the patient falls suddenly down, and is affected with violent convulsive motions." Nor does Hughling-Jackson's latter-day definition[4] prove altogether satisfying, namely: "A sudden, rapid, occasional, and local discharge of cerebral cortex."

The theory of arterial spasm, causing local cerebral anemia, is plausible, and, if we accept it, an explanation of the syndrome of any form of epilepsy is easily elaborated. Spitzka,[5] claiming that arterial spasm accompanies the fit, defines epilepsy as "a diseased state of the encephalon, without a palpable characteristic lesion, manifesting itself in explosive activity of an unduly irritable vasomotor center, leading to complete or partial loss of consciousness, which may be preceded or followed by various phenomena, expressing the undue preponderance of some, and the suspended inhibitory influence of other cerebral districts."

Nothnagel[6] places the convulsion-center between the lower portion of the pons and the upper portion of the oblongata. He has shown that epileptiform convulsions with automatism are produced by a slight puncture at this point. If we prolong sensory irritation of a given spinal nucleus after reflex movements have taken place, the subsequent reaction (if there is any reaction beyond the plane of the segment in which the given nucleus is situated) will be in the oblongata in the form of laughing, crying, deglutition, and spasms. Irritation of certain parts of the cerebral cortex causes active anemia of certain parts of the brain, independently of the condition of the rest of the body,[1] for the cortex has the capacity of acting as a vasomotor center for the blood-vessels of the brain. A complemental hyperemia of other parts of the brain ensues, the convulsion-center is overwhelmed with the increased blood-supply, and functional excess results in the form of convulsions. The afflux of blood into special parts of the brain, through unaffected arteries, results in exalted function of the well-nourished areas. Hence the auræ, varying with the area: odors, colors, tinnitus, etc.

In *petit mal* the thalamus ganglia are probably undisturbed, and the initial arterial spasm is confined to the surface of the hemispheres. Transitory unconsciousness or abolition of cortical function occurs, without further disturbance of the patient, as his automatic ganglia carry on their functions. The less the arterial spasms the less the fall of manometrical pressure within the cranial cavity, and the less the complementary hyperemia of the lower centers. Such is the theory of arterial spasm advanced by Kussmaul and Tenner, and accepted by some neurologists.

Gowers[2] rejects the theory of arterial spasms. He refers to the fact that the experiments of Ferrier, Luciani, Bartholow, and Horseley teach that irritation of the cortex may cause convulsions. He concludes from the study of auræ that the cortex of the cerebral hemispheres is the seat of primary discharge. A case of his own and a similar case of Oebeke's confirm this view, for in each of these cases a lesion in the internal capsule occurred in an epileptic. After this accident the fits, previously general, almost ceased on the paralyzed side. The inference must be that the discharge causing the general convulsions occurred above the internal capsule, namely, in the cortex. It is unnecessary that there should be any primary change in the energy-producing action of the cortical cells; there is simply, according to this view, an instability of resistance in the cells. Gowers considers epilepsy, therefore, as a disease of the gray matter of the brain, most frequently of the cortex, which results in an impairment of the resistance of the nerve-cells to the liberation of energy. A sudden and violent liberation of nerve-force results in derangement

[1] Read at a meeting of Neurological Section, Academy of Medicine, New York, May 22, 1896.
[2] Starr, "Familiar Forms of Nervous Disease." New York, 1890, p. 252.
[3] "Domestic Medicine," London, 1821, p. 272.
[4] *West Riding Asylum Reports*, vol. iii, p. 331.
[5] *Medical Standard*, vol. i, p. 5.
[6] Meynert, "Psychiatry," Sachs' trans., 1885, p. 212.

[1] Meynert, op. cit., p. 249.
[2] "Dis. of the Nervous System," vol. ii, London, 1881, p. 753 and ff.

of function and impairs the integrity of the complex state called consciousness.

Whatever may be their differences of opinion regarding the occurrence of arterial spasm during an epileptic attack, neurologists agree that there are intimate and intricate relations between epilepsy and insanity. Of the mental manifestations arising from epilepsy, perhaps the most interesting is the psychical disturbance. In 1850 Morel[1] gave the name *epilepsie larvée*, or masked epilepsy, to attacks of the disease in which there were psychical manifestations. Esquirol followed him in the usage of the term, as also Legrand du Saulle.[2] The latter, in 1877, reported two cases under this name, both of which were cases of double consciousness. In the first of his cases the mental alienation lasted from several hours, in some attacks, to three days in others, during which time the patient traveled long distances, often regaining consciousness in a prison or on a railway train, when he found himself in possession of several articles he had unconsciously stolen. In du Saulle's second case the patient, whose periods of automatism lasted from twenty-four to forty-eight hours, murdered a peaceable old man, a stranger, during one of his attacks.

Among the few cases of psychical epilepsy reported have been included cases of imperfect consciousness, expansive delusions, dreamy states, intervallary insanity, and, in short, all psychical disturbances preceding, replacing, or succeeding convulsions. Should not the term psychical epilepsy be limited to cases in which the epileptic psychic equivalent replaces the epileptic attack of *grand* or *petit mal*, excluding double consciousness? It would simplify the matter if the term were confined to those cases in which a maniacal outburst follows the usual preparoxysmal stage. After a period of despondency, irritability, restlessness, dread, giddiness, or, in some patients, intense elation, in others an exhibition of voracious appetite, instead of a fit the patient experiences a sudden attack of laughing, weeping, or shouting, with extravagant gesture and maniacal appearance, and even in some examples with uncontrollable homicidal impulse devoid of motive.

An argument against the inclusion of all cases of double consciousness, under the title psychical epilepsy, is that this condition, while most frequent among epileptics, occurs also in alcoholic patients and in cases of melancholic frenzy.

Gowers[3] applies the term masked epilepsy, or *epilepsia larvata*, to a condition succeeding a minor attack of epilepsy, in which there are random remarks made and automatic acts performed by the dazed and stupid patient. Imperfect loss of consciousness with automatic action, he remarks, constitutes the minor seizures in some cases without any initial epileptic stage.

Brief notes on two of my cases will suffice to illustrate psychical manifestations in cases of *petit mal*. These are not pure psychical epilepsies.

H. S., an unmarried clergyman under my care, of German parentage and aged twenty-seven, had his first epileptic attack at the age of twenty-four, which he attributed to overstudy, anxiety, and loss of sleep preceding an examination. For several weeks he prevented drowsiness while studying at night by sitting with his feet in cold water. His father was an epileptic. After a minor seizure, during which he stares wildly about and chews convulsively, he walks about, eats, prays, or preaches coherently for about fifteen minutes. During this amnesic period he can carry on conversation, recognizing the members of his family and calling them by their names. All his attacks have been similar and have appeared at intervals of about a week.

A. S., a bookkeeper, aged thirty, married, born in Germany, came under my care after having experienced for at least six months conditions of reduced consciousness occurring every two or three weeks. During his mental alienation, which probably follows an attack of *petit mal*, he wanders off for a week or less, walking about the streets, entering shops and saloons, conducting himself properly, but in an amnesic condition. He has nocturnal attacks, with cry, but accurate testimony regarding them could not be elicited. He has frequent headaches, is irritable and indolent, and his memory is impaired. His pupils are unequally dilated and respond but slightly to light. He is myopic.

Performances of a psychic character following an attack of *grand* or *petit mal* are not psychic equivalents, and should be called post-paroxysmal psychical manifestations. They are due to mental disturbance, but occur as a result of other causes than epilepsy in certain cases.

Spitzka[1] declares that double or alternating consciousness appears to be limited to the mental disturbances of menstruation and to periodical insanity. He also alludes to its occurrence in primary confusional insanity.

An acquaintance of the writer, a scientist of ability and reputation, occasionally rises from his bed at night and, in a condition of partial but amnesic consciousness, writes upon subjects connected with his work. The results are accurate and valuable, and he knows of the occurrences

[1] "Traité des maladies mentales," Paris, 1860, p. 480.
[2] "Étude medico-légale sur les épileptiques," Paris, 1877.
[3] "Dis. of the Nervous System," vol. ii, London, 1881, p. 746.

[1] "Manual of Insanity," New York, 1887, p. 59.

during his double consciousness only by finding the manuscript on his table in the morning. He is not an epileptic.

Kiernan[1] says: "Unconsciousness is not a proof of epilepsy, nor does a conscious psychosis disprove the epileptic nature of the subject in whom it occurs. All psychoses may occur in epileptics, and be tinged by the coexisting epileptic state. These, however, are not true epileptic psychoses, and need not necessarily present their characteristics."

As examples of the class of cases to which it seems desirable to limit the term psychical epilepsy, I add brief notes of two cases occurring in the practice of Professor M. Allen Starr, who has put their histories at my disposal. A report of the first case has been published.[2]

S. F., aged twenty-one, is the son of healthy and intelligent parents, with a personal and family history free from any rheumatic or syphilitic taint or alcoholic habit. Up to his fifth year he was a bright and healthy child. He then received a severe fall on his head, followed by unconsciousness for twelve hours. Since that accident he never completely regained his mental balance, and has suffered from pain on the left side of his head. He seemed fairly bright at his lessons, and was willing to study, but was very easily excited and accustomed to give way without adequate cause to emotional impulses, either of joy or anger. When sixteen years of age he received a second fall on his head, followed again by unconsciousness for several hours. Since the second accident all his symptoms have been decidedly aggravated. The headache is located by him in the left parietal and occipital regions, and the maximum point of pain seems to be at a point half-way from the parietal boss to the median line, and at this spot a small scar can be seen, and there can be felt a slight irregularity of the surface of the skull, suggestive of a fracture. The pain from which he suffered, though continuous, was subject to exacerbations. In connection with the sudden increase of pain, the boy would develop a maniacal condition, in which his actions were extravagant, his speech abusive and profane, and in which he at times indulged in acts of violence toward his family and employers. In consequence of these attacks, which occurred every few days, or, when under treatment by bromids, every three or four weeks, he was unable to keep up with his classes at school or to pursue any steady employment.

He was not particularly bright or intelligent, though he could not be said in any sense to be demented. Between the attacks he had no clear recollection of what had occurred during the attack, and on several occasions he had lost consciousness; he had never had any convulsions.

It is an interesting fact that this boy recovered after trephining, the operation being performed for Professor Starr by Dr. A. J. McCosh.

The second case, of which a mere outline is quoted from Dr. Starr's copious and valuable notes, is that of W. V. D.:

His father was intemperate and ungovernable. His paternal grandmother and two greatuncles on his father's mother's side were insane. His mother is insane. His father had an epileptic cousin. His mother's father was paralytic and nervous, and one greatuncle was intemperate, and one member of his mother's family had migraine. At the age of three years the patient had screaming attacks and hallucinations of visions (seeing faces). Though very bright, he was ungovernable and and contrary. At seven he had attacks of running about and of laughing, sighing deeply afterward. Between the ages of seven and a-half and nine and a-half he had no attacks, under bromide treatment. At nine he was circumcised. At eleven he had hallucinations of visions—shapes and figures—together with attacks of fear, for one month. At twelve he had laughing attacks at night, making loud blowing sounds. During the following year he had over 1100 attacks of singing, laughing, crying, etc. The bromids being then withdrawn, he had his first convulsion, and ninety convulsions were counted during the subsequent fifteen months. He was conscious of the running attacks, but not of the singing, or laughing, or crying, nor of the convulsions. He has become insane. This case, up to the age of about twelve years, was a case of pure psychical epilepsy.

Attacks of psychical epilepsy are of vast medico-legal importance. Epilepsy is common among the criminal class, and the lower type of epileptic is cunning, deceitful, treacherous, and bold. Egotistic and irritable, he often carries resentment against someone. A mere grudge, in the interparoxysmal periods, becomes the basis of a homicidal attack or other criminal act during an epileptic seizure. Bevan Lewis[1] calls attention to the fact that leading ideas, delusional or otherwise, prevailing in the preparoxysmal stage, are likely to become operative in conditions of post-epileptic automatism and during psychic equivalents. It is a hard task to decide whether an epileptic is accountable and should be punished for crimes committed during a psychical manifestation, equivalent or post-epileptic. The discovery of motive in an interparoxysmal complaint or threat is not enough to satisfy one of the responsibility of the patient for crime committed during an attack. The alienist knows that the epileptic will perform, automatically, complex acts that have the very appearance of deliberate volition. He knows that the patient, under circumstances, is really irresponsible.

A just disposal will be made of these criminals and of the malingerers for whom their legal advocates enter a plea of transient insanity due to epilepsy, when they are promptly confined in a hospital under the eye of a competent alienist, that their interparoxysmal mental state may be studied, and the preparoxysmal and post-paroxysmal stages of subsequent attacks may be observed. Study of the intervallary period will generally prove barren of result; rarely will it afford us

[1] "Epileptic Insanity," *Am. Journ. of Insanity*, vol. lii, No. 4, p. 528.

[2] *Am. Journ. of the Med. Sci.*, November, 1894.

[1] "A Text-book of Mental Diseases," London, 1889, p. 234.

evidence of a mind governed by delusions. Study of the conditions immediately antecedent and subsequent to the attacks will give us evidence as to the presence of genuine automatism, of uncontrollable impulse, of blind fury operating during reductions in consciousness.

CLINICAL MEMORANDA.

MOTOR AND SENSORY APHASIA OF SEVEN YEARS' DURATION, DUE TO PROBABLE THROMBOSIS FOLLOWED BY ANGIOMA; OPERATION; RELIEF OF PAIN; SLIGHT IMPROVEMENT IN SPEECH.

BY J. T. ESKRIDGE, M.D.,
AND
CLAYTON PARKHILL, M.D.,
OF DENVER, COL.

THE following case seems to indicate that the usefulness of cerebral surgery may be further extended.

James S., aged forty-five, single, born in Ireland, a miner by occupation, has been living in Colorado nearly twenty years.[1] Seventeen years ago, while blasting in a mine, he was injured by a flying piece of rock. The right hand and left knee were severely cut and bruised, and the skull was crushed in just above the left eye. He recovered from the immediate effects of the accident, but has suffered from headache in the left frontal region from that time up to the present. Ten years after the injury, he suddenly lost his speech. It is impossible to learn from his history whether he has indulged in alcohol to excess or has ever contracted syphilis. Of the circumstances attending the onset of his loss of speech, I can find out nothing. Three years later, or four years ago, he was adjudged insane and sent to the Colorado State Insane Asylum. During his stay there his speech has been confined to "yes" and "no," which he does not always use correctly, and a few profane words.

On January 27, 1896, during an official visit at the State Asylum for the Insane, through the courtesy of Dr. Thombs, the superintendent, I was permitted to make a thorough examination of the patient.

The gait is good and no ataxic symptoms are observed. All the leg muscles are strong. Dyn. R., 200; L., 232. The right wrist had the tendons severed in front during the mine accident, and this hand is now much cooler than the left one. There is no paralysis of the facial mucles, and the tongue is protruded in the median line. Knee-jerks, R., about normal; L., a little lessened. Ankle-clonus absent. Tendo-achillis, R., slight; L., absent. Deep reflexes of the arms are all increased, the right more than the left. Masseters absent. Sensation: All general sensory phenomena are normal on the left side. Right side, tactile sense lessened throughout this entire side of the body, but least in trunk, thigh, and upper arm, most decided over foot, hand, and face. Localization and muscular sensation lessened. Temperature, pain, posture, and joint sensations, so far as I am able to determine, are nearly normal. Hearing: Watch, R., not at all; L., on contact. Tuning-fork heard with both ears, but it is impossible to determine in which one it is heard most distinctly. Smell present and equal on each side. Taste, he can recognize salt only on the left side of the tongue. Eyes: Central vision, fields, disks, fundi, internal, and external muscles are normal. His memory is good. He often feels dizzy, and at times has a tendency to fall backward. He has a constant numb sensation on the right side of the body, but he experiences no pain. He frequently feels confused, especially when he is trying to concentrate his mind on any subject. He has no delusions and shows no evidence of insanity. He is a strong and vigorous man, enjoys the liberties of the place, and is almost constantly employed in doing chores around the Asylum. He complains a great deal of headache in the left frontal region of the head.

Aphasia.—He recognizes objects and their uses when presented to him through any of the senses on the left side, and through all the senses on the right side, except that of hearing. Considerable time is consumed in testing his power to recognize objects with the right ear. He recognizes a watch, bell, or coins when heard by the left ear. He can hear a loud ticking watch with the right ear, but the sound of a watch, of a bell, or of jingling coins, when heard by this ear alone, apparently conveys to his mind no distinct meaning other than that of noise. He readily recalls the spoken names of objects presented to him through all the senses, except that of hearing on the right side. Sometimes he seems to recall the spoken name of an object heard by the right ear, and at other times he does not. His answers have to be taken with caution, as he says "yes" sometimes when he means "no," and when he becomes fatigued he is nervous and excitable. He seems to understand speech and music on first testing for this power, but it is found that he appreciates fully only the commoner things that are spoken to him. Some things have to be repeated several times before he seems to understand them. If one talks to him in an ordinary conversational style he becomes confused. He has no difficulty in recognizing his own name when it is spoken, or a word when it is spelled aloud. It is impossible to get him to understand what is wanted when I endeavor to test his power to call up mentally the sound of a note, figure, letter, or word. In testing his power to recognize notes, figures, letters, words, or colors seen, it is found that he can do so only for a few. He soon gets confused. He can read nothing aloud, and it is doubtful whether he can read inaudibly so as to understand what he reads, except a few familiar words, *e.g.*, Asylum, Dr. Thombs, Pueblo, etc. He recalls a few familiar objects, the names of which are seen. He does not seem to be able to write voluntarily, nor at dictation. He copies fairly well, both printing and writing, but does so mechanically. He cannot write the name of any object presented to him through any of the senses. He does not understand what he has copied, except when he has copied some familiar words. He cannot be induced to

[1] I am unable, on account of the patient's aphasic condition, to learn anything of his family history, and only a few items can be ascertained concerning his personal history.

try to write his own name, but he reads and understands it when written by another. He does not recognize a letter when his index-finger is made to trace it. It is impossible to determine whether he can call up mentally the appearance of an object, figure, note, letter, or word. He cannot speak voluntarily. His entire vocabulary is limited to "yes," "no," "G— d—d." These words are used automatically, or simply reflexly. He can, however, usually manage to say "yes" or "no" voluntarily when requested to do so. At times he can voluntarily utter his profane expression, but at other times he cannot. The patient cannot propositionize. He understands and uses gesture expression. He can read figures inaudibly, and apparently understands the value of most figures taken separately. He shows no evidence of understanding most numbers above ten. He can add two numbers, but cannot subtract, etc. He seems to recognize money, but it is doubtful whether he appreciates the value of each denomination. He can play cards and other games.

Diagnosis.—The first question to decide was the connection of the injury to the head, which occurred seventeen years ago, with the aphasia, which followed ten years subsequently. Immediately above the left superciliary ridge, there is an old cicatrix, and beneath this, the bone is depressed to a depth of about one-quarter of an inch. The headache of which he complains dates from the time of the injury to the head. As the aphasia did not occur until ten years after the receipt of the blow to the head, it is believed that there is no direct connection between the former and the latter. It is thought, however, that the head injury may have caused a local pachymeningitis, and that this may have extended backward and produced some changes in the cortical branches of the middle cerebral artery. It is thought that the immediate cause of the aphasia was a thrombotic occlusion of cortical branches of the left middle cerebral artery. The aphasia is distinctly motor and sensory in character. The motor aphasia is nearly absolute, the sensory partial. There is no distinct word deafness or mind blindness, but a partial apraxia and mental enfeeblement, as shown by his mistakes in the use of some objects, and his inability to concentrate his mind without becoming confused and exhausted. The existence of the complete motor aphasia prevents a satisfactory test being made of the sensory.

The next question to decide was whether any surgical operation would likely be followed by benefit to the patient. Dr. Clayton Parkhill of Denver, one of the consulting surgeons to the Asylum, was visiting Pueblo at the time of the examination. He was requested to see the patient with me. He was of the opinion that the depressed fragment of bone should be elevated, as this might relieve his headache, but in regard to further surgical procedure, he declined to express an opinion, preferring to be guided by the results of my examination.

After studying the case carefully, I became firmly convinced that there was no direct connection between the old head injury and the aphasia. The cortical area involved by the lesion in the left hemisphere seems to be extensive, and is supplied by the first part of the second, and the fourth cortical branches of the left middle cerebral artery. The main lesion was at the point of the bifurcation of the Sylvian fissure. In view of the marked improvement following excision of the degenerated orolingual center, in a patient operated upon for me by Dr. Edmund J. A. Rogers, at the Arapahoe County Hospital, some two and a half months before the time set for this operation, I decided to recommend excision of the cortical surface of Broca's center in this case.[1]

REMARKS UPON THE OPERATION AND SURGICAL ASPECT OF THE CASE.

By Dr. Parkhill.

Operation, March 1, 1896, 10 A.M.: On elevating the depressed fragment of bone above the left orbit, it was found that the left frontal sinus only had been involved in the injury. The anterior wall had been crushed in, while the posterior was intact. The depressed bone was removed and the sinus scraped out and packed. The measurement on the scalp were then transferred to the bone. A semi-circular flap was raised, with its base downward, and a half inch button of bone removed from over Broca's convolution. The opening was enlarged until it had a diameter of about two and a half inches. The dura was found to be normal. On opening it, however, and reflecting it, an arterio-venous aneurism of the pia was at once preceptible. As might be expected in such a condition, the veins predominated, giving to the surface of the brain a bluish tinge. Pulsation was very faint. The greatest change in the vessels was found over the speech center of Broca, and extended upward and backward in the direction of the horizontal branch of the fissure of Sylvius. The dilated vessels were secured above and below by means of numerous catgut ligatures, and the intervening portion was excised. It was believed inadvisable to enlarge the opening in the bone further in an attempt to remove all of these dilated vessels, as it would make the operation so extensive as to be hazardous to the patient's life. The cortical substance in the region from which the angioma had been removed seemed soft and degenerated, and a considerable portion of this was excised. During the operation there was considerable capillary hemorrhage, which was fairly satisfactory controlled by gauze pressure. Inasmuch, as there was not absolute hemastasis, a small rubber drainage-tube was introduced, the dura sutured around it by catgut, and it was brought out through an opening in the scalp flap. The scalp was sutured with silkworm-gut, and the ordinary dressing for these cases was applied. The patient rallied well from the operation, and showed very little evidence of shock.

On April 24th, Dr. R. W. Corwin of Pueblo, elevated the scalp flap and inserted a disk of gold foil between it and the dura. From this, the patient made an uneventful recovery.

MICROSCOPICAL REPORT.

By Dr. E. R. Axtell.

In the specimen submitted for examination was found a mass which was very soft and pulpy, and which, when

[1] MEDICAL NEWS, August 15, 1896, p. 176.

examined, was found to be composed of dilated blood-vessels having walls which resembled small veins and arteries. A few of the vessels looked like new formed vessels, but most of them seemed to be preëxisting blood-vessels, dilated. Along with this dilatation, there is an increase in the amount of connective tissue. The vessels present a general tubular outline, but show fusiform and sacculated dilatations. Pathologic diagnosis is simple angioma.

FURTHER NOTES ON THE CASE, WITH REMARKS.

BY DR. ESKRIDGE.

The patient was able to be up on the eighth or tenth day after the operation, and at the end of the third week it was observed that he had added to his vocabulary four words: "cold," "snow," and "good morning." He had never been known, since he had been in the asylum, to use the expression "good morning," until about three weeks after the operation, when on meeting the superintendent one morning, and being accosted "Good morning, Jim," he replied "good morning." The words "snow" and "cold" had not been uttered by him before. These words apparently were not uttered entirely voluntarily, as he could not repeat them on being requested to do so. He did not recover his general health very rapidly after the operation, and in consequence the gold foil was not inserted between the scalp and dura until the latter part of April. His headache has been relieved by the operation, and the superintendent of the asylum, Dr. Thombs, says that the patient seems brighter than he has at any time during the previous four years.

On my visiting the asylum, April 29th, a few days after Dr. Corwin had inserted the gold foil, I found the patient in bed, but cheerful and free from pain. At that time, his speech did not seem much better than it did before the operation, but as the wound had been so recently reopened for inserting the gold foil, it could not be expected that if he had made any improvement in speech it would be manifest then, and besides I made no thorough examination to test his speech.

May we hope to benefit old aphasics whose lesions have been limited to the cortex by surgical measures? If so, what is the explanation of favorable results following surgical procedures? It is probable that a degenerated cortex, from occlusion of a vessel, may act as an irritant, and give rise to headache, and exert an inhibitory influence on adjacent cerebral structures, especially on corresponding portions of the cortex in the opposite cerebral hemisphere. The greater the inflammatory condition in the cerebral substance following occlusion of a vessel, the greater the probability of headache and inhibitory influence of the lesion. Removal of the source of the irritation under such circumstances might relieve the headache. Just how much improvement of function may follow removal of the old degenerated portion of the cortex, time, with ample experience, must decide. If nothing more is accomplished by excising softened areas of the brain than the relief of persistent headache, the operation is entirely justifiable.

In regard to the angioma, I am inclined to think that while an abnormal condition of the blood-vessels, involving most of the cortical branches of the left middle cerebral artery, may have existed since birth, the pronounced dilatation of the vessels occurred subsequent to the development of the aphasia, which probably came on suddenly. His speech had been excellent before this. It would be interesting to know the state of the corresponding vessels on the opposite side of the brain.

Further report of this case will be made in about a year.

FORMALIN IN THE TREATMENT OF PURULENT OPHTHALMIA.

BY E. OLIVER BELT, M.D.,
OF WASHINGTON, D. C.

THE following case is of interest, not only in showing the value of formalin in promptly arresting ulceration of the cornea, but also in its remarkable effect upon a large prolapse of the iris, which was reduced, and a round mobile pupil obtained *without anterior synechia*.

On March 13, 1896, I was called in consultation with Dr. W. Sinclair Bowen, to see M. C., a boy of fifteen years, suffering with purulent ophthalmia (specific) of both eyes. The right eye had been affected six days, and was in a very serious condition with only light perception. There was great chemosis of the conjunctiva, a large protrusion of the iris through the lower quadrant of the cornea, and the entire cornea was cloudy. There had been a purulent discharge from the left eye for two days, but the cornea was still clear, and there was no chemosis. The treatment had been nitrate of silver solution, two per cent., once a day. Boracic acid solution hourly when the eyes were bathed freely with hot water. To this was added, for the right eye, free scarification of the conjunctiva daily, and atropin sol. Bichlorid solution, 1–4000, was substituted for the boracic acid. However, both eyes got worse, and in a few days there was considerable chemosis in the left eye. Ice compresses were then used on the left eye, but in two days the cornea became cloudy, and was soon sloughing at the lower segment. At this time, Dr. Burnett suggested the use of formalin, and a solution of 1–1500 was ordered every hour instead of the bichlorid solution. Eserin had been substituted for the atropin the day before. Once a day the sloughing cornea of each eye was touched with formalin solution, 1–60. The second day, the slough had disappeared from the left cornea, leaving a clear ulcer. On the third day, there was considerable improvement in the right eye, and the chemosis was disappearing in both. In ten days, the left cornea was clear, no chemosis, and very little discharge. The prolapse of the iris in the right eye had shrunken greatly. In one month, the left eye was normal, V. $\frac{2}{2}\frac{0}{0}$, with no clouding of the cornea. There was no sign of hernia of the iris in the right eye, except some pigmentation of the cornea, where the iris had been incarcerated. There was no adhesion of the iris to the corneal wound. The iris had resumed its normal position with a circular pupil. Though not transparent, the clouding of the cornea was not dense, and he could count fingers at six inches. From the constant progress of the

disease until formalin was used, and its rapid subsidence immediately following, I am quite convinced that the eyes would have been lost but for its use. I believe formalin is especially valuable in arresting corneal ulceration, and in lessening corneal opacity.

MEDICAL PROGRESS.

Varicella of the Larynx.—M. MARFAN and J. HALLE (*Revue mens. des malad. de l'enfance*, 1896, Januar). One of the rarest diseases to come under the observation of the clinician, is varicella of the larynx. The authors describe two cases, which came under their care, as follows:

The first case was a boy of three years of age. He was suddenly seized with great difficulty of breathing and fits of suffocation. Inspection of the oral cavity, together with a bacteriological examination, gave no evidence of diphtheria. On account of the cyanosis, tracheotomy was performed. There was no membrane. After an injection of antitoxin, the typical eruption of varicella appeared on the forehead, neck, cheeks, abdomen, and back. The same eruption appeared on the body of a younger brother of the patient. After a little while the breathing became normal and recovery supervened.

The second case was a child of nine months. The typical eruption was distributed over the greater surface of the body. There was marked stridor and difficulty of breathing. Examination as to the presence of diphtheria was negative. Nevertheless, an injection of 20 c.c. of antitoxin was given. Broncho-pneumonia and copious diarrhea followed, and death was not long delayed. The *post-mortem* examination revealed a circular shallow ulceration on the posterior part of the right vocal cord, about the size of a pea (a burst varicella vesicle). The prognosis of laryngeal varicella is extremely dubious. As yet, statistics furnish but one recovery. Treatment consists in either intubation or tracheotomy. Stenosis of the larynx in varicella may at times be confounded with diphtheria. A bacteriological examination will serve to distinguish the two.

Latent and Masked Tuberculosis. — In the *Berliner klinische Wochenschrift*, 1896, Nos. 19, 20, and 21, PROFESSOR E. MARAGLIANO speaks of latent tuberculosis as that condition in which, notwithstanding the tissue changes due to the invasion of the tubercle bacillus are progressing, we yet fail to elicit any symptoms which might reveal their presence. In these cases, the intercurrence of any depressing factor, such as pregnancy, a slight disorder, mental depression, insufficient nutrition, is generally sufficient to convert this latent process into a process which mostly passes for one of spontaneous activity. Frequently, such general symptoms as fever, wasting, etc., are present, though the most careful examination fails to detect any local physical changes. Clinically, two types—the dystrophic and the typhoid are recognized. In the dystrophic type, the progressive wasting, anemia, loss of appetite, and cessation of the menses, show a marked disturbance of the functions of nutrition. The prominent symptom of the typhoid form is fever. This may be either remittent or intermittent and, at times, so high as to suggest the existence of typhoid fever. The not infrequent coexistence in these cases of splenic enlargement and an exanthema may lead to an error of diagnosis. The frequent unavailability of the physical and microscopic methods of examination, renders the diagnosis of the latent and "masked" types of tuberculosis, at times, very difficult. An available method in these cases may be found in determining the toxicity of the blood-serum. The injection of a few centimeters of blood-serum, in which the toxic products of the tubercle-bacilli are present, will suffice to kill a rabbit. A still more practical method consists in the characteristic reaction obtained by the injection of tuberculin.

Resection of the Fifth Costal Cartilage as a Preliminary Step to Incision of the Pericardium. — DURAND, in the *Rev. de Chirurgie*, June, 1896, urges the advantage of resection of the fifth costal cartilage before opening the pericardium. He holds that it is assuming an unwarrantable risk to plunge a trocar blindly through the intercostal space, without knowing if the pleural cavity is traversed or not. Moreover, resection of the cartilage gives an opportunity for free drainage of the pericardium. The operation can be readily performed under cocain. The incision is made over the cartilage from the sternum outward. The cartilage is bared, divided at the sternocostal joint, lifted and divided at its junction with the rib. The perichondrium is removed with the cartilage. The reflection of the pleura is next observed and avoided, and the pericardium opened as widely as the case demands. It may be necessary to remove the margin of the sternum with a rongeur to reach the uncovered pericardium.

THERAPEUTIC NOTES.

Diverticulum of the Gall-bladder.—STAUB mentions a case of a diverticulum of the gall-bladder caused by a calculus. The diverticulum was above, and simulated the gall-bladder, while the bladder situated below might well have been taken for a floating kidney. A cholecystotomy resulted in a complete cure.

Treatment of Spinal Meningitis with Hot Baths.—J. WOROSCHILSKY (*Therap. Monatsch.*, February, 1895). At the suggestion of Aufrecht, the author treated two severe cases of spinal meningitis, in which the other methods, including the calomel treatment, had failed, with hot baths.

In both cases good results followed.

A warm bath (103° F.) was given every day of ten minutes' duration.

In the one case, after eight days of this treatment, a marked improvement was noted.

In the other case, complete recovery took place after the fifteenth bath.

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SATURDAY, SEPTEMBER 5, 1896.

CREOSOTE IN TUBERCULOSIS, BURLUREAUX METHOD.

THE use of creosote in pulmonary and other forms of tuberculosis has an ardent supporter in Burlureaux, *Gazette Heb. de Med. et Chir.*, July 19, 1896, who asserts that the intolerance of the organism for this drug is a reliable indication of tubercular degeneration. The case is stated by him in three aphorisms. (1) Every patient who does not tolerate very small doses of creosote is almost surely beyond hope. (2) Every patient who bears creosote well in large doses has excellent chance of recovery. (3) If a patient has borne large doses of creosote well, and later becomes unable to do so, the prognosis is rendered thereby a most serious one.

Burlureaux rejects stomachic and rectal methods of administration of creosote, because he believes that a surer effect and a larger dose accompany its subcutaneous use. For this purpose the ordinary creosote of commerce is redistilled at 207° C. (404⅗° F.). This gives a creosote pure, except that it contains from eighteen to twenty per cent. of guaiacol, which is not objected to. The creosote is then mixed with from fourteen to twenty parts of sterilized olive oil, and is injected *subcutaneously* if the dose is large—*into a muscle* if only a small amount is required. A child from one to five years old should receive ♏1 to ♏7 daily; an adult ♏15 to ʒ 1, or even as high as ʒ 4. These amounts are of the creosote, not of the mixture.

There is usually no immediate effect of the injection if the oil is forced slowly into the tissues. In a small percentage of patients (one per cent. in males, ten per cent. in females) considerable pain is experienced. A blood-vessel is naturally to be avoided.

Sometimes pain begins soon after the injection and lasts from two to three or even five hours. Within a few minutes the odor of creosote is noticeable in the breath, and the patient perceives its taste. The urine may also be discolored, and this discoloration is an index of the prognosis—if slight, the prognosis is good; if marked and invariably present, the case is wellnigh a hopeless one. Perspiration after injection is another unfavorable sign; but the worst symptom of all is a subnormal temperature, with chilly sensations appearing about seven hours after injection, especially if long-continued. The temperature may sink even to 95°. This symptom is a contra-indication for the use of creosote, or at least its use in large amount.

Burlureaux has treated in the manner described 262 cases, over two hundred of whom were much improved in health as a result of the creosote.

THE SANITARY CONDITION OF MEDICAL SCHOOLS.

PERHAPS the public thinks, if it thinks at all, a medical school is a most sanitary institution. But probably no more conspicuous example of inconsistency, of failure to put into practice what the faculty is daily teaching in reference to hygiene, exists than is to be found in the amphitheater of the average medical school. In most institutions smoking and spitting on the floor is not only allowed, but it is actually expected. The vulgar applause with which the students greet the arrival of a favorite professor stirs up clouds of dust, which rise from the filthy floor and float in the atmosphere for hours, till it has been inhaled and reinhaled by the heedless students. In

a great many medical schools a large number of the students fall victims every year to these unsanitary surroundings. In some schools the percentage of students annually attacked with tuberculosis has been as high as three or four per cent. In the graduating class of the college with which the writer is associated four men out of fifty acquired tuberculosis during their course, and one of these will probably not live out the first year of his practice.

It has been frequently remarked that students who leave college and take positions immediately as hospital internes are very liable to show signs of tuberculosis before they finish their hospital service. Considering the usually vigorous class of young men who make up the body of medical students, this is entirely too great a ratio, and speaks loudly against the continuance of the unsanitary condition of the lecture-rooms. The amphitheater is particularly liable to neglect. On account of the arrangement of the chairs and their backs, the floor is invisible. A decent appearance is presented to the faculty when the arena alone is clean. Long hours, bad air, imperfect heating, and constant inspiration of tubercular dust has been the ruin of many bright young medical students, some stricken down during their college course, others at the end of it, and still others succumbing during the immediately succeeding years. Is it not due to the preservation of our professional self-respect that our medical schools be thoroughly investigated and during the present vacation put in the most sanitary condition possible, and that such rules and regulations be made and such changes undertaken as will secure hereafter not only a decent and dignified audience-room, but one which shall not endanger the lives of students and teachers?

THE CAMERA IN THE DETECTION OF CRIME.

The vogue of the Röntgen ray and the skiagraph continues. The great Li Hung Chang is said to have been comforted, and to bear with equanimity his historic loss of the yellow jacket and the peacock feather, now that he has found, by means of the "X-ray," the Japanese bullet he carries in his head. But in spite of the vogue of the new imponderable, the photographic camera continues to add to its achievements and to offer enlarged possibilities to the student of medical jurisprudence. The camera reproduces differences that the human eye cannot perceive, and frequently represents objects with a wrong distribution of light and shade, because there are colors which are not visible, but which possess actinic power.

The experiment, familiar to some, of photographing a practically invisible drawing made with a solution of sulphate of quinin in water, and getting a clear, sharp result in the photograph, owes its success to the fact that quinin has the power of converting the violet, ultra-violet, and blue rays into rays of less refraction. Treatment of surfaces to be photographed with substances having powers similar to the power of quinin, and the employment of various sensitizers in gelatin emulsion put within our reach, results which, a generation ago, would have been deemed magical.

From the *Tägliche Rundschau* we learn of a practical use of photography in the detection of crime that is novel and ingenious. The murder of a woman was traced to one of two men—her husband and a neighbor. Each had hairs upon his clothes. Dr. Jeserich, "the inventor of criminal photography," photographed the clothes of the suspected men, and the camera disclosed the fact that the hairs on the husband's clothes were from his wife's head, while the other prisoner had hairs from his own head on his clothing. The same scientist has shown that the differences in inks used in writing and in altering a document can be shown clearly in a photograph of the document. Even on surfaces from which, to the eye, all trace of writing has been erased, the camera reveals legible characters; and the forger or thief fails of his purpose of irrevocably destroying the original purport of the document with which he tampers. Were all possible agencies known to science used by scientists in the detection of crime, these would be "troublous times" for malefactors.

ECHOES AND NEWS.

Illinois Licenses Midwives.—The Illinois State Board of Health at its meeting in July, passed a resolution allowing midwives to practise in Chicago. Applicants will have to submit to a thorough examination and give satis-

factory proof that they are capable of doing their duty, and file a bond with the Board.

A New University Building.—The University of Pennsylvania is erecting a building for the department of dentistry, to cost $120,000.

Medical Journalism in Paris.—According to the *Annuaire de la Presse*, the number of medical journals published in Paris has fallen from 191 in 1895 to 175 in 1896.

American Public Health Association.—The twenty-fourth annual meeting of the American Public Health Association will be held at Buffalo, N. Y., September 15th, 16th, 17th, and 18th.

Typhoid Fever in New Haven.—Upward of seventy cases of typhoid fever have now been reported in New Haven. All of these are believed to be traceable to the milk delivered by one dealer.

An Endowment Fund for the Royal Victoria Hospital.—Lord Mount Stephen and Sir Donald Smith have given $800,000 to form an endowment fund for the Royal Victoria Hospital, Montreal.

Typhoid Fever in Chicago.—Typhoid is reported to be again on the increase. No particular locality seems to suffer in excess of others, but the disease is gaining a a general hold on the city.

A Texas Donation.—The University of Texas has received $30,000 from Col. W. C. Breckinridge of San Antonio, to be used in building a refectory and dormitory for the women medical students.

Indianapolis to Try Sand Filtration.—The recommendation of the Board of Health of Indianapolis that intermittent sand filtration be introduced into their water system has been approved. The filtration of 2,500,000 gallons per acre has been adopted as the limit.

The First Women Doctors from Edinburgh.—Miss Jessie Macgregor and Miss Mona Geddes, of Edinburgh, were two of the 151 medical graduates from Edinburgh University in the class of 1896. They are the first women to take medical degrees from that institution.

Sewage-Farms in Paris.—One-fifth of Paris sewage is used to irrigate waste lands. The municipal council acquired a tract of 2000 acres of arid, sandy soil in the forest of Saint Germain, two years ago, and irrigated it with sewage. It is now bearing luxuriant crops.

Dr. MacDonald's Successor.—Dr. Carlos F. MacDonald has resigned the presidency of the New York State Lunacy Commission and Dr. Peter M. Wise has been appointed his successor, the appointment to take effect October 1. Dr. MacDonald, whose term would expire by limitation in May, 1901, will resume private practice.

Sponges as Septic Agents.—Professor Lang of Vienna, in a recent work, "Hygienic Hints," declares that sponges, on account of the impossibility of destroying the bacteria in them, have long since been banished from the operating-table, and that their exclusion from the bathroom and washstand should follow.

A Lucid Definition.—A recent German writer in a work recording observations on psychic phenomena in animals, including man, concludes that soul or spirit is a force emanating from the nervous system, stimulated and modified by the physical organism under the manifold influences of the outer world.

The English Stage-Stabbing.—The inquiry into the death of the actor who was stabbed to death recently, at a London theater, by a too realistic villain, showed that the dagger pierced the front border of the lung, the pericardium, and aorta. In spite of the mortal nature of his injury, the wounded man was able to answer a question and allowed the curtain to be raised.

The Philadelphia Polyclinic.—The annual catalogue announces that the faculty of the school has been increased and its facilities enlarged, especially in its laboratory equipment. An excellent Röntgen apparatus has been provided for daily use in diagnosis and study. Nearly sixteen thousand new cases were treated at its dispensary last year, and over five hundred major operations were performed.

Tesla's Theory of the Roentgen Rays.—An exhaustive study of this new form of electric force, causes Mr. Nikola Tesla to reaffirm his belief that the rays consist of streams of minute material particles projected with great velocity. In this idea Mr. Tesla stands alone, as most authorities are agreed that this influence is propagated by means of vibrations in an imponderable ether.

Anesthetics in Great Britain.—The latest report on chloroform as an anesthetic by the *Lancet's* board of investigation seems likely to lead to the rapid introduction of a combination of nitrous oxid with ether. British surgeons have objected to ether, principally on account of its slowness of operation and the distress it causes many patients; but these difficulties have been overcome by the preliminary use of the nitrous oxid.

An Argument Against Pessimism.—Mr. Wilfred Ward, in an account of conversations with Huxley contributed to the *Nineteenth Century*, quotes him as having said: "One thing which weighs with me against pessimism and tells for a benevolent Author of the universe is my enjoyment of scenery and music. I do not see how they can have helped in the struggle for existence. They are gratuitous gifts."

How Best to Make Society Meetings of Personal Value.—Do not try to hear all the papers. Pick out those you are most interested in. Listen to them intently. Come forward where you can hear. Argue with yourself as to the statements made. Discuss points that you want light upon. Refute statements with which you disagree. Do not allow your neighbor to talk to you while you are listening to a paper. If your power of attention lags, get a good breath of fresh air.—*Col. Med. Journal.*

Water Supply of Cleveland, Ohio.—This water supply is drawn through an intake constructed at the expense of

several million dollars—a tunnel extending under the bed of the lake a distance of 8642 feet to a crib. Theoretically, the currents render the water about the crib safe, but storms and counter-currents running eastward, often force polluted water into the pipes. The water has been degenerating steadily. The city has concluded to make a large expenditure to lengthen the tunnel, purify the river, and erect a garbage crematory.

Sunstroke at the Seaside.—*The British Medical Journal*, after reporting a case of sunstroke in an infant, says: "This is but an example of the evil effects of a practice which can be seen in full swing at any of our seaside watering-places—little children 'paddling' with their clothes tucked up, their feet chilled and their heads exposed to the blazing sun. No doubt they enjoy it, but the danger is very great. The thickness of the child's skull and of the soft parts covering it is less than in the adult, and the fact that in some cases when recovery takes place permanent paralysis results, shows that definite local mischief is produced in the brains of patients attacked in this way.

Transmission of Insanity.—John Turner, in the *Journal of Mental Science*, gives some figures upon the frequency of hereditary insanity, based upon the study of 1039 cases observed in the Essex County Asylum. The daughters appear especially to suffer from the insanity of the parents, but the insanity of the father appears to be more often hereditary. Thus, 106 insane fathers have had 117 sons and 138 daughters affected with insanity, while 256 mothers have transmitted the insane taint to 113 sons and 182 daughters. These figures confirm Darwin's law of heredity, according to which the characteristics of the father are more often transmissible to the male line, those of the mother to the female line.

Foreign Medical Students in France.—Some over-ardent French patriots have lately started the theory that no foreign medical men should be allowed to practise in France; and further that something should be done to restrict the number of foreign medical students, who come in greater numbers each year to benefit by the superior knowledge and science of the great French doctors. It seems that 433 Russians, 217 Bulgarians, 211 Roumanians, 204 Turks, 82 Greeks, 83 Egyptians, 70 Swiss, 112 Germans, 100 Americans, 47 South Americans, 6 Japanese, and 8 Persians, are now inscribed as students in Paris, and of these, by far the greater number, join the medical schools. The foreign students, as a whole, are divided into 1489 men and 339 women.

The Size of French Families.—Francisque Sarcey, commenting in the *Cosmopolitan* on one item of the last French census, says that in France not only are large families rare exceptions, but when met with they are sure of being ridiculed rather than admired, and no theatrical joke is more certain of applause than "the appearance on the stage of an Englishman and Englishwoman followed by fourteen or fifteen children, ranged in regular gradation like steps of stairs. Fecundity is in French mothers of families a sort of blemish. When a young wife presents her husband with an heir, it is bad enough; if a second comes, she is pitied; if a third is on the way, those interested are angry, and the indifferent keep away; if a fourth—oh! if a fourth, there will be an explosion of indignation against the tyrant of a husband, of pity or of ridicule for the wife. But never fear—they are not likely to expose themselves to it. Among the middle class, and especially among the Parisian middle class, families with one or two children are the rule. There has just been founded, under the presidency of Mme. Destillon, a league, the object of which is the encouragement of large families.

SELECTION.

THE HYGIENE OF WATER SUPPLY.[1]

By ALFRED SCHOFIELD, M.D.

WATER, when pure, is not a dubious mixture, like air, of gases in various proportions, but is, as we know, a definite chemical product, formed by the union of two volumes of hydrogen with one of oxygen, the three volumes condensing into two as the gases change to a liquid. We say "when pure," for seldom indeed is this interesting fluid composed of these two gases alone. We hear a good deal about the "adulteration of food" act; but all the adulterations of food put together, or of other beverages, are not to be compared in importance with the adulteration of water. We will prove our words further on.

Meanwhile, consider what a tricky sort of fluid this innocent compound is. In the first place, it is protean in form: it can be in turns a solid, a liquid, and a gas. But that is not all. Fluids, as a rule, expand with heat; water, however, at 32°, when heated, begins to contract in volume until 39° are reached, from which point it expands. Water just about to freeze at 32° is therefore lighter than the water 7° warmer, and hence rises to the top—one result being that ice forms on our ponds first at the top, and not at the bottom. Another painful eccentricity of water when it freezes is that, instead of contracting still more in its change from liquid to solid, it has the truly exasperating quality of expanding one-eleventh of its bulk, bringing destruction and ruin thereby into all our houses by burst pipes and boilers.

If we take water at its other extreme—that of heat—its behavior becomes positively weird. In its change from gas to water three volumes were reduced to two; in its transformation from water to vapor two volumes do not become three, as we should naturally expect, but over three thousand! It is true that while the one volume of water is incompressible, these three thousand are elastic; but this is only what we should expect. It is this mighty increase in bulk and elasticity that makes steam the mechanical power of the universe.

Steam, again, contains an immense amount of what is called latent heat, as it requires nearly one thousand times as much heat to raise boiling water into steam as to raise water from 211 to 212°. We merely mention this in

[1] Abstract of article in the *Eclectic Magazine*, taken from *Leisure Hour*.

passing, as we do many other facts, by way of remembrance, and not to reduce these pages to the level of a class-book. We emphasize this point of the latent heat of steam, however, to bring intelligent opinion to bear upon the immense superiority of steam as a disinfectant compared with hot air. Air at 213° is 213° and nothing more, and very soon gets below this; but steam at 213° has a reserve force of latent heat in the background that renders it immensely more efficacious in destroying spores, penetrating as it does into the folds of the infected articles, and gradually parting with its latent heat.

The sources whence we obtain water are mainly five in number—one from above (the rain), two from beneath (wells and springs), and two on the earth's surface (upland waters, such as lakes and reservoirs and rivers).

It is generally supposed that rain water, at any rate before it reaches the earth, is absolutely pure. Such, however, is not the case. In the first place, in England all the rain water contains on an average about two grains of salt per gallon. Then it always washes the air through which it passes, and hence, before it reaches the earth, is laden with spores and germs, and dust and particles of all sorts. Even if it were pure, it is sadly deficient in quantity; for the rainfall in England would not supply above fifty people per acre, although nearly 3700 tons of rain per annum fall on every acre. Rain water is not very palatable. If used for drinking, it should be stored in stone or slate cisterns underground, as at Gibraltar.

With regard to the surface waters, no river in England is long enough to purify itself from the sewage that falls into it. Naturally river water is extremely pure, and is much less hard than spring water, and would form a good drinking-water but for the reason given above. Nevertheless, London, as the largest city in the word dependent upon river water, draws up daily nearly one-third of the whole river Thames. Of course such water cannot be used directly, but requires the most careful filtration. The water is allowed, first of all, a week to settle in reservoirs, to give the coarser sediment time to settle, and it is then run off on to the filter-beds, which are several feet thick, and constructed of very fine sand upon the surface, with coarser sand and gravel below. The real filtering agent is the inch of fine sand, and until lately, whenever this had been used a short time, it was removed and well washed.

A most extraordinary revolution in filtration has, however, been brought about by our recent discoveries of the purifying and antiseptic powers of microbes. We knew they are the scavengers of the earth, but were slow to understand that they might with ease be pressed into our service and compelled to do our dirty work to order. A layer of mud containing millions of germs to the cubic foot is spread over the surface of the sand, and so far from being cleansed from impurities, it is never changed as long as the water will pass through. The result is wonderful. A jelly-like mass, consisting largely of living organisms, forms on the top, which is the real filter. These germs seize on and oxidize all organic matter so completely, and are themselves so incapable of penetrating the layer of sand beneath, that the water thus filtered is far purer than that passed through the purest sand. By this extraordinary means a living filter is constructed, and the bacteria are compelled to do our work just as if they were day laborers or other drudges. Of this water, Londoners consume some thirty gallons per head (being double the amount allowed in Berlin), over 120 million gallons being supplied daily for the direct use of the people.

Upland surface water is very much purer and better for drinking purposes. It is also very soft, and great cities are increasingly looking to lakes for their supplies, and, if these do not exist, are creating them as needed, often, indeed, thereby rather enhancing the beauty of the neighborhood than destroying it. Liverpool, Manchester, and Glasgow are now all supplied by this means.
greatest success.

As to springs and wells, the water varies considerably. Of course, all that comes from deep sources is, as a rule, pure, but shallow wells in towns and villages are an unfailing source of disease, owing to their contamination. In cottage gardens we frequently find two holes dug—one for sewage, the other being the well; and in some cases, where the soil is porous, this is deemed a positive advantage as regards the sewage, which leaks out so quickly as to save the trouble of emptying! Where it leaks to is generally the nearest well; and it is perfectly surprising to see how bright and clear the water often is from these "sewage" wells; and not only so, but how the constitutions of the natives can resist the sewage poison for years, though drunk daily. The leakage, which may have gone on for an indefinite time, perhaps, is only discovered at last by an epidemic breaking out from some disease germs imbibed. Of course the water will not keep, and becomes very foul and muddy after rain.

Deep wells always draw their supply from beneath some impervious stratum, beyond the reach of any surface pollution, and the water often comes from a distance, where this stratum rises to the surface.

An interesting experience near Liverpool shows that the new red sandstone is not always to be trusted. A deep well was bored into it at Liverpool nearly five hundred feet, all being carefully bricked except this part in the solid rock. The result was that, there being large fissures in the rock, the shallow wells, many of them impure, for some distance round, were drained dry into this deep well. The villagers, seeing these wells of no further use as wells, utilized them as cesspools. These gradually drained, of course, also into the deep well, the water of which soon became so foul it had to be closed, a complete system of drainage provided for the district, and it was eighteen months before the water became sufficiently pure to be used.

We may sum up good and bad drinking-waters by saying that springs, deep wells, and upland surface waters are, as a rule, wholesome; that stored rain and lowland surface waters are suspicious, and that shallow well and sewage river waters are dangerous.

Just lately, again, river waters have risen in repute, for it is found, if free from actual sewage, the germs in them have an antiseptic power rather than a destructive power on the human frame, and are thus more active for good than a pure distilled water that contains nothing but hy-

drogen and oxygen. It is, indeed, only gradually that we are getting over our insensate horror of all germs, and are beginning to discriminate between good and bad.

Water may be pure and wholesome and yet not palatable. Distilled and boiled waters are instances of this, and the reason of their tastelessness is that they contain no air. They become palatable if poured over toast.

Water is called "hard" and "soft" according to the amount of lime and magnesium salts it contains, if not more than six grains per gallon, or, in other words, six degrees of hardness, it is called soft, if more, it is called hard. If the salt is carbonate of lime, it is called temporary hardness, because the salts can be deposited by boiling; if salts of magnesium, it is called permanent hardness, because boiling does not remove them. The latter is much the more injurious.

It has long since been found that for water-pipes inside a house, where so many twists and turns are requisite, there is no material so convenient, so durable, as lead. Soft water, however, flowing through lead pipes, dissolves at once a small portion of the lead, and rapidly produces symptoms of lead-poisoning in those who drink it. One-tenth of a grain per gallon is sufficient to produce them.

The purest, softest waters act most rapidly upon lead; on the other hand, if hard water is used, it forms at once a coating inside the lead-pipe, completely protecting it from entering the water. Hard water, therefore, is so largely used, not only because it is so readily attainable, but because it is such a safe water for domestic purposes. On every other ground it is a nuisance.

This protective coating of our lead-pipes gives us a hint, if we possess lead cisterns, not to have them scraped when cleaned, so as to remove this coating on the surface, but merely wiped with a soft cloth. Too much zeal in this case might readily do a great deal of harm.

Moderately hard water is not injurious for drinking, and is very palatable; but if it is very hard, and particularly if there be much permanent hardness in it, it is bad, especially for those who have any predisposition to gout.

The appearance of water is absolutely no safeguard; sewage water containing every form of organic impurity, may, as we have said, be perfectly clear, and is very often sparkling. We have also shown that among those who are accustomed to its use it may be drunk with impunity for years, and is even stated to be absolutely fattening! No water is really safe to drink unless its source be known and its purity beyond suspicion, or it be *boiled*.

There seems to be, unfortunately, a not unnatural prejudice against the use of boiled water. It is insipid and not always quite cold. Under these circumstances, the British matron is apt to fall back on the domestic filters. This is, indeed, a disastrous and dangerous error.

A filter, as a rule, is kept in the basement, and, although regularly supplied with water, at any rate when the family are at home, is seldom or never cleaned. Recent researches, unfortunately, show that, whether it be cleaned periodically or not, it is no absolute safeguard, for it has been clearly proved that all ordinary filters, after a day or two, largely increase impurities in the water. They are, indeed, germ manufactories; and water comparatively free from germs obtains innumerable organisms when passing through an ordinary or neglected filter. The idea of straining off impurities by charcoal and other powders is good enough if the water to be filtered contain any impurities coarse enough not to escape; but we may be thankful that all the water supplied to our houses has been already filtered with more thoroughness than we can do it at home. All filters should be banished from the house rather than so used as to accumulate and distribute germs.

There are perfect filters, the use of one of which has decreased the number of cases of typhoid fever in the French army over sixty per cent., and which absolutely strains off all germs. In these filters the water has to force its way through the microscopic pores of unglazed porcelain or fossil clay, which are small enough to strain off the minutest organism. Even these filters have to be placed in boiling water every other day to keep them in perfect order; but this entails very little trouble.

With regard to aerated waters, we must always remember there is no absolute safety in drinking them if they are artificially made. Natural effervescing waters, bottled at the spring, are presumably quite safe. We mention this because so many traveling abroad, and distrusting the water of Continental hotels and restaurants, take refuge in siphons, which may be quite as dangerous.

The two principal diseases conveyed by water are typhoid fever and cholera. Nearly every outbreak of typhoid fever has been traced to impure water. If nothing but boiled water were drunk by the community, it would do more to stamp out typhoid fever than any other means that can be conceived. Of course in this we include the water so frequently found mixed with milk. If we are to drink, therefore, nothing but boiled water, it means we must boil all our milk as well.

There can be no doubt that the extent to which typhoid fever still prevails in England is a disgrace, for it is not only a preventible disease, but one without any redeeming quality. It kills people quietly, in large numbers, without any sensation; therefore people are not as afraid of it as they should be.

Cholera differs from this *toto cælo*. It is undoubtedly our best sanitary inspector. Most of the drastic reforms that have been carried out in sanitation throughout Europe have been suggested by Inspector Cholera. This disease is still a terror; and so long as it continues so, it is difficult to say whether it destroys or saves the most lives. All our ports have been put in drawing-room order, under the orders of this Inspector.

Cholera is undoubtedly a water-borne disease. The classical case that inaugurated the epidemic of 1866 is well known. A man in Southampton traveled up to town and took lodgings in a house in the northeast of London, near the Lea. He there had a mild attack of cholera, with the result that the water of the river was contaminated. The water company that derived its supply from this polluted stream unfortunately happened at the time to have its filtering-beds out of order for twenty-four hours, with the result that the cholera germs were distributed widely enough to cause the deaths of 16,000 peo-

ple. Of course, if the 16,000 had boiled their water they might have escaped. It does not matter where we go, whether to India, Mecca, Hamburg—where the last outbreak left its plainly written lesson—or Marseilles, the epidemic is caused and spread by drinking dirty water.

The river at Marseilles received its cholera germs in a remarkable way. Twenty corn-mills discharged their refuse into it, the corn coming from Russia and India, where it had been trodden out and handled in cholera-stricken districts. The condition of the Holy Well at Mecca is wholly indescribable in these pages.

Perhaps, indeed, we have said too much already; and yet it is not too much if it leads every reader henceforth to forswear unboiled water, unless derived from a known and perfectly pure source.

SOCIETY PROCEEDINGS.

CANADIAN MEDICAL ASSOCIATION.

Twenty-ninth Annual Meeting, held in Montreal, August 26, 27, 28, 29, 1896.

(Specially reported for THE MEDICAL NEWS.)

FIRST DAY.

THE meeting was called to order by DR. THOS. G. RODDICK, M.P., chairman of local committee. After a short, but warm, address of welcome to the 170 delegates in attendance, Dr. Roddick resigned the chair to Dr. James Thorburn of Toronto, and the general session was opened. The visitors introduced were: Dr. Osler of Philadelphia, Dr. Cushing of Boston, Drs. G. L. Curtis and A. R. Robinson of New York, Dr. Collard of Sing Sing, Dr. J. C. Webster of Edinburgh. The first business was the calling together of the Committee on Interprovincial Registration. This large committee of twenty-seven, under Sir Jas. Grant, retired to deliberate.

The first paper presented was a discussion of

THE RELATION BETWEEN LEUKEMIA AND PSEUDO-LEUKEMIA,

by DRS. C. F. MARTIN and G. H. MATTHEWSON of Montreal. Blood observations have not fulfilled the expectations of sharp diagnosis. Anemia and pernicious anemia, tuberculosis, anorexia nervosa, sarcomata, give appearances which render diagnosis debatable. Bone-marrow and bone changes are occasionally absent; macroscopic and microscopic appearances are interchangeable. True leukemia and Hodgkins' disease the authors consider cases of increased leucocytosis; the conditions, however are uncertain and inconstant. Cases were related from the Pathological Department of Royal Victoria Hospital, in which aberrant and abnormal blood-cells only tended to confuse the diagnosis.

A preponderance of mononuclear cells or myelocytes is not trustworthy. In a case which proved to be trichinosis, sixty per cent. of eosinophiles were found. The authors consider all leucocytes of similar origin, and from microchemistry gather all into one group, if no local disease be discoverable.

The members were next taken by special electric cars to Montreal General Hospital, where a number of extremely interesting cases were shown, among the number a case of successful excision of gastric ulcer in a woman of twenty-four years. Drainage was effected through the abdominal wall. Some months after the operation a stitch worked its way out, leaving a small fistula in wall over stomach. Dr. Kirkpatrick was the operator. An interesting brain case was that of a man with fracture of the skull and serious brain hemorrhage from a bicycle accident. Dr. Shepherd trephined and removed blood-clot. Much difficulty was met with in arresting hemorrhage, but all seemed well. In four days there was recurring bleeding, which was only controlled by tying the common carotid. The wound was stuffed with iodoform gauze, and perfect recovery followed. A case of stricture of the urethra, which had gone on to malignancy, was shown. All the soft parts down to the prostate had been removed. Among the medical cases were: Progressive muscular atrophy of two years' duration, which had begun with pains in the legs; disseminated sclerosis in a man; multiple peripheral neuritis in a child of 4½ years, with great emaciation; a case of cervical rib of the left side in a woman; a case of urticaria, producible at will, had on his back "C. M. A., 1896," in honor of the visitors; several cases of scleroderma, doing well under thyroid extract; flatfoot successfully treated by Whitman's plates; an Italian navvy with true scorbutus was shown by Dr. G. G. Campbell; treatment, vegetables and lemons.

At the afternoon session, DR. MEEK, London, Ont., read a paper on

SOME CASES OF ABDOMINAL SECTION FOR CONDITIONS COMPARATIVELY RARE.

One case was a fibro-cyst of uterus; another, sarcoma of left ovary: another, volvulus from flexure of the colon in a man; all went well for ten days, then the patient died maniacal. A case of congenital absence of auditory meatus was shown.

DR. R. FERGUSON of London, Ont., read a paper on

OPHTHALMIA NEONATORUM.

Authors estimate that from ten to twenty per cent. of the blind owe their misfortune to this preventable disease. Treatment is, thorough cleansing with a quart of warm water daily, and a little silver nitrate. It was decided by the meeting to memorialize the various Boards of Health to place this malady among the notifiable diseases. In the discussion it was stated that formalin was very successful.

Dr. T. T. S. Harrison of Selkirk read a paper on

OBSERVATIONS ON THE HEREDITY OF CARCINOMA,

giving his experience in fifty-six years of practice.

One member had seen returning-cancer twenty-two years after operation.

SECOND DAY.

The first event was an explanation and illustration of X-ray apparatus and work, by DR. G. P. GIRDWOOD, in the chemical lecture-room of McGill College. Members were allowed to examine their hands, and other objects, in the fluoroscope. The fact is to be noted that the

first successful application of Röntgen skiagraphy in surgery in America was made with the instruments at McGill.

J. PRICE-BROWN discoursed on

CLERGYMAN'S SORE THROAT.

Many various conditions are given this name. There may be follicular pharyngitis, or chronic laryngitis. Nasal stenosis is often present, therefore always examine the nasal tract.

DR. GEORGE WILKINS of Montreal gave the

ADDRESS ON MEDICINE.

He referred to the great advances which had been made in medicine and surgery, and made his text "Modern Treatment as the Result of Experimentation." He paid a glowing tribute to the memory of Sir Joseph Lister, and stated that Jenner had laid the foundation of microbic pathology just one hundred years ago. The discovery of minute disease-producing organisms had furnished the link between science and therapeutics. It had upset the zymotic theory and revolutionized medicine. The introduction of serumtherapy marked a distinct epoch in the practice of medicine and gave to medicine something of the accuracy of the exact sciences.

After the morning session special cars carried the doctors to the Hotel Dieu. Here Senator SIR WILLIAM HINGSTON delivered an address on

DEBATABLE POINTS IN SURGERY,

giving his experience and preferences. He removes nose tumors by the mouth, aspirates for chest fluid, and uses trocar if pus has formed; prefers lithotrity to lithotomy, but met with a stone which resisted 250 pounds applied by lithotrite; would not operate by external opening for stricture. In cancer of breast, operate as early as possible and repeat; does not fear leaving a gland, as return is generally in the cicatrix or muscle; had operated in one case seven times and the patient was made comfortable, but died from an irrelevant disease. Sir William's work is modified by modern ideas, but he hesitates still to allow that theoretical Listerism is essential to good work. Cleanliness is very necessary, but antiseptics have no attraction for him. A tour through the wards was made. This fine hospital is under Les Religeuses, and evidences of ecclesiasticism, as crucifixes, religious paintings, candles, etc., are much *en evidence*. The wards have a medieval aspect, inasmuch as each bed is inclosed with a white curtain. An elegant repast was served.

At the afternoon session DR. JOHN STEWART of Halifax, gave the address on

SURGERY.

He apotheosized Lister and Listerism, pointing out the principles which had modified surgical practice the world over, and increased the sum of human happiness by the relief of conditions long held to be hopeless.

Honorable DR. D. MARCIL, Senator of Ste. Eustache, presented a paper in French on

THYROIDECTOMY.

This was the report of a successful case of removal of a one-sided goiter. The patient became myxedematous and was finally cured by thyroid extract. The doctor considered that in patients suffering from goiter, a peculiar diathesis existed and the gland was incapable of removing the morbid state. In the discussion, Dr. Hingston hinted that this idea would cause one to refuse to operate. Removal for cosmetic effect only is never justifiable.

DR. SHEPHERD had had several successful operations, and considered that only the cases in which the tumor could be shelled out were satisfactory for operation.

In the evening the annual banquet of the Association was held in the splendid rooms of the Windsor Hotel.

THIRD DAY.

DR. A. R. ROBINSON of New York spoke on

ETIOLOGY AND TREATMENT OF ACNE.

He believes common acne should be considered a local disease, though various inflammatory conditions of sebaceous glands and hair-follicles are included in the term; diagrammatic illustrations were given of comedones; the blackhead is rather due to chemical changes in the sebum than to foreign matter; staphylococci are generally present, therefore organisms become a factor; keratoses exist and present a strong argument for local treatment.

Treatment—Curette and empty follicles, hot water and green soap; no glycerin; acids or lemon-juice good for blackheads. Resorcin, sulphur, and salicylic acid for keratosis condition. Sublimate, if used, must be very weak. Pustules to be opened and disinfected. If boils, no matter how fat the patient, give cod-liver oil.

DR. SHEPHERD agreed as to the disease being local. He had found that the skin of patients in this country would not stand green soap.

PROFESSOR T. WESLEY MILLS and DR. S. KANE gave demonstrations of

BRAIN EXPERIMENTATION.

DR. MILLS considers the motor area almost *nil* in birds, but that it is of increasing value in the scale up to monkey and man, and centers are not equally active in all individuals. A pigeon was shown from which the entire cerebrum had been removed; it could flap the wings and fly a little. A kitten with areas for forelimbs and neck could wash its face in four days. A cat with right area removed seemed as well as ever. A rabbit, minus the motor area of both sides, was quite lively. A puppy, in same condition, scratches wound with both paws. Operations on dogs dangerous from hemorrhage.

DR. OSLER commented on the extreme importance of brain study in localizing abscess, tumors, etc.

DR. W. B. THISTLE put forth

A THEORY OF THE ELIMINATIVE TREATMENT OF TYPHOID FEVER.

It was an argument for the purgative treatment of typhoid, considering it due to toxins absorbed from the intestines. Different bacilli produce the symptoms, and they are but rarely found before nine days. Nature extrudes the toxins by the bile, the urine, the intestines, and the skin.

Treatment—Daily purges of calomel and magnesium sulphate, and salol as an internal disinfectant. Even in

comatose condition would purge, and has had good result.

DR. OSLER of Baltimore would not be rash enough to purge. He greatly feared cases where there is diarrhea.

Dr. MILLS believes that animals may digest normally without germs in the intestinal canal.

DR. G. LENOX CURTIS of New York gave a paper on

ORAL SURGERY.

He said that physicians and surgeons were generally unable or unwilling to deal with troubles in the mouth due to diseased or broken teeth, and proceeded to justify this rather strong statement by the relation of two cases which were unrelieved until they fell into the hands of an "oral" surgeon. In one case, a bad root caused the trouble; in the other, a chip of tooth.

DR. FRANK BULLER of Montreal gave demonstration of an

ARTIFICIAL NOSE-BRIDGE.

and related cases of foreign bodies in the eye in which the electromagnet had been used with success.

At the evening session,

DRS. WYATT JOHNSTON and GEORGE VILLENEUVE gave a study of

ENTOMOLOGY IN LEGAL MEDICINF.

The purpose was to establish rules to determine the length of time since death, and to compare the researches of Menien. The fauna on dead bodies agreed quite closely with that found by Menien in France, though in a different country. These gentlemen, having studied the subject in their duties as coroners' physicians, find that on a body dead three months, and exposed to the air, the animal found is the flesh-fly; from three to six months, acids develop in the flesh, and book-mites, cheese-mites, and species of dermestes may be found; from six to nine months, acari; nine to twelve months, mites. From one to three years there is but little left except ligaments, then tenebrio and attaglinus. By trial, it was found that dermestes would not lodge on a body under three months. Flies take a month to hatch out.

FOURTH DAY—MORNING SESSION.

The Committee on Intercolonial Registration reported as follows:

"Your committee beg leave to report that, having examined the present requirements of the licensing boards of the several provinces, with a view to obtaining by mutual concession a uniform standard of matriculation, education, and examination, wonld recommend the following:

"I. Matriculation.—The schedule of subjects shall comprise (1) English language, including grammar, composition, and writing from dictation; (2) arithmetic, including vulgar and decimal fractions, and the extraction of the square root; (3) algebra, to the end of the simple equations; (4) geometry, euclid, books 1, 2, and 3, with easy deductions; (5) Latin grammar, translation from specified authors, or of easy passages; (6) elementary mechanics of solids and fluids, comprising the elements of statics, dynamics, hydrostatics, and elementary chemistry; (7) history, England and Canada, with questions in modern geography; (8) and any one of the three following subjects: French, Greek, or German, the requirements being the same as in Latin.

"Fifty per cent. of the marks in every subject shall be necessary for a pass, and seventy-five per cent. for honors.

"In lieu of the above will be accepted a degree in Arts in any university in Her Majesty's Dominions, or from any college or university that may hereafter be recognized, but no matriculation in Arts in any university will be recognized.

"II. Professional Education. — The curriculum of professional studies shall begin after the passing of the matriculation examination, and shall comprise a graded course in the regular branches of four yearly sessions of not less than eight months of actual attendance on lectures in each year, the subjects to be anatomy, physiology, chemistry, materia medica, therapeutics, practical anatomy, histology, practical chemistry, pharmacy, surgery and clinical surgery, medicine and clinical medicine, including diseases of the eye, ear, throat, and nose, and mental diseases, obstetrics, diseases of women and children, medical jurisprudence, and tricology, hygiene, pathology, including bacteriology.

"That at least twenty-four months out of the graded four years, of eight months each, be required for attendance on hospital practice, to begin with the second year of study, That proof of attendance on not less than six cases of obstetrics be required.

"III. Examination—(*a*) All candidates for registration in the various provinces, in addition to having fulfilled the foregoing requirements, shall be required to undergo examination before examiners to be appointed in each of the provinces by their respective councils, or by means of assessors, as in the Province of Quebec, or by delegating their authority to one central body, as has been done in Manitoba. Each examination shall comprise all the subjects of professional study, shall be both written and oral, and fifty per cent. of the marks shall be required in every subject for a pass. (*b*) The committee make these resolutions merely as suggestions for the consideration of the councils of the several provinces as a mutual basis of agreement, and that each be requested to report thereon to the next annual meeting of the Association, and also to send one or more delegates to represent them at that meeting."

DR. RODDICK, on behalf of the Nominating Committee, made the following nominations, which were afterward unanimously approved by the Association: For president, Dr. V. H. Moore, Brockville. Vice-presidents: Prince Edward Island, James Conroy, Charlottetown; Nova Scotia, J. T. Black, Halifax; New Brunswick, T. Walker, St. John's; Quebec, J. M. Beausoliel, Montreal; Ontario, W. W. Dickson, Pembroke; Manitoba, R. S. Thornton, Deloraine; Northwest Territories, E. H. C. Rouleau, Calgary; British Columbia, Dr. Harrington, New Westminster. General secretary: F. N. G. Starr, Toronto (reëlected). General treasurer: H. B. Small, Ottawa (reëlected). Local secretaries: Prince Edward Island, H. D. Johnston; Nova Scotia, A. T. Mader, Halifax;

New Brunswick, G. A. B. Addy, St. John; Quebec, J. G. McCarthy, Montreal; Ontario, W. G. Anglin, Kingston; Manitoba, W. H. Smith; Northwest Territories, George Macdonald, Regina; British Columbia, A. Weld.

On the suggestion of the Nominating Committee, the city of Montreal was chosen as the next meeting place of the Association, it being thought advisable to meet there in 1897, since the British Medical Association will also assemble there during the summer of that year.

DR. J. F. W. ROSS of Toronto, gave the address on

OBSTETRICS.

He dwelt first on tumors complicating pregnancy. These are generally fibroid, and early ectrosmos is indicated. In large fibroids, celiotomy and incision of uterus. A case was related of rupture of uterus where, after cleansing, a rope of iodoform gauze was pulled through the tear down to the vagina; patient recovered. Cæsarean section and craniotomy were equally safe for mother, but not so for child.

Dr. CUSHING of Boston, said that in case of rupture, he would turn out uterus through vagina, and plug.

PROFESSOR J. C. WEBSTER of Edinburgh, spoke of

PESSARIES IN GYNECOLOGY.

There is no disease worthy of the designation anteversion. Many women have anteflexion without knowing it. Retroversion may occur without symptoms. If there are adhesions, you cannot replace by pessary, and tender ovaries will not bear pessaries. Occasionally, a Hodge, or Thomas, or Smith, or soft rubber, may be used. Practically, pessaries may be omitted, except cups for prolapse.

DR. A. LAPTHORN SMITH of Montreal, read a paper entitled:

ONE HUNDRED CASES OF RETROVERSION OF THE UTERUS TREATED BY VENTROFIXATION AND ALEXANDER'S OPERATION, WITH SUBSEQUENT RESULTS.

Of forty-two cases of Alexander's operation thirty-nine were successful; of sixty-six cases of ventrofixation sixty-three were satisfactory. Pregnancy occurs normally after this operation.

Dr. CUSHING said he had had more experience in removing pessaries than in putting them in place; does not approve of Alexander's operation. Dr. Gardner, of Montreal, finds but little use for pessaries; has abandoned Alexander's, but likes abdominal hysterorraphy.

Meeting adjourned to Royal Victoria Hospital.

DR. JAMES BELL showed some brain cases, now well, in one the temperosphenoidal lobe had been excavated, the result of ear trouble; a boy with thrombosis of sinus, the jugular was excised; a child of six years with a bullet in the brain, a photo. by X-rays showed the foreign body two inches from the forehead; two cases of sutured patellæ with perfect movement; four elbow cases; two cases of paralysis from too tight Esmarch—the solid round rubber has been abandoned on this account; floating kidney removed; a man with calculi in both kidneys; two cases of rib excision for empyema—in one sixty-five inches of rib structure had been removed; three cases of excised hips with good motion. Among the medical cases shown by DR. JAMES STEWART were six cases of thoracic aneurism; one with tabes; a case of multiple neuritis, ataxic type, without sensory disturbances; multiple neuritis with extreme wasting of legs in a girl, caused by (?) excessive medical administration of alcohol for a previous trouble; a case of cured Raynaud's disease, with loss of all the toes and two fingers.

DR. J. E. GRAHAM, of Toronto, read a paper on

THE INFLUENCE OF MITRAL LESIONS ON THE EXISTENCE OF PULMONARY CONSUMPTION.

Statistics were given showing the rareness of the combination, especially mitral stenosis. A suggestion made was that in heart lesions greater efforts of respiration were made, and this, acting as a kind of pulmonary gymnastics, led to better development of lung tissue, a bulwark against tuberculosis.

DR. OSLER had seen acute endocarditis in patients with tubercle occasionally. Case related in which diagnosis had been confidently made of heart lesion only at autopsy proved to be acute tuberculosis.

DR. BLACKADER, at Brampton Chest Hospital, had found the combination quite rare.

DR. W. TOBIN, of Halifax, presented a paper on

MILITIA MEDICAL REORGANIZATION.

This was the outline of a scheme which it was thought the Association might urge on the Minister of Militia, so that in case of being called out, the unreadiness would not be so great as at present. It was desired to make the service departmental rather than regimental.

DR. J. B. MCCONNELL reported a case of

TETANY FOLLOWING SCARLATINA.

Eleven days after onset of fever in a child tetany occurred in all four extremities, and lasted a week; child had had a previous attack.

DR. F. J. SHEPHERD, of Montreal, reported an

EXCISION OF A SCAPULA,

the first in Canada. The patient was a woman with a myelosarcomatous tumor which began two years previously with pain which was supposed to be rheumatism. Bone removed to neck, which was sawn through. Healing rapid and perfect movement of arms without drooping.

DR. H. L. REDDY presented the subject of

PUERPERAL INFECTION—TREATMENT BY MARMOREC'S ANTI-STREPTOCOCCIC SERUM.

Immediate improvement was manifest on use of injection, temperature fell three degrees in ten hours. Cure in twelve days.

DR. A. L. DEMARTIGNY, of Montreal, spoke of

ELECTRIC BATHS AND DYSPEPSIA.

He employs the Faradic current, and applies one electrode on the organ to be treated and the other in the water, and gets wonderfully good results in chronic dyspepsia.

DR. H. D. HAMILTON, of Montreal, reported a

NON-MALIGNANT TUMOR OF TONSIL,

and showed photo. It occurred in a man of twenty-two years, who was only aware of something wrong for two

weeks. It was two inches long and half an inch thick. Removed by electric snare, lymph adenoma.

The following papers were read by title: "Sinus Thrombosis Associated with Acute Suppurative Otitis Media in Scarlet Fever," Dr. J. W. Sterling, Montreal; "Cold Air in the Treatment of Pulmonary Tuberculosis," Dr. Edward Playter, Ottawa; "Early Atrophy of Muscles in Cerebral Disease," Dr. Frederick G. Finley, Montreal; "Treatment of Otitis Media Purulenta," Dr. A. Proudfoot, Montreal; "Technic of Vaginal Hysterectomy," Dr. L. Coyteux Prevost, Ottawa; "Actinomycosis," Dr. J. A. Springle, Montreal.

BRITISH MEDICAL ASSOCIATION.

Sixty-fourth Annual Meeting, July 28, 29, 30, 31, 1896.

(Concluded.)

SECTION ON PUBLIC MEDICINE AND HYGIENE.

G. V. POORE, M.D., F.R.C.P., Physician to University College Hospital, read a paper on

THE DISPOSAL OF DOMESTIC SLOP-WATER IN ISOLATED HOUSES.

He said that the slop-water of an isolated house must ultimately take the same course as the rain falling on the land upon which the house was built, that is, the line of natural drainage. Household slops consisted of bath-water, which was often almost clean; bedroom slops, composed of a mixture of soapy water and urine, and the waste of the kitchen and pantry sinks, which was apt to contain solid food, particles, and fat, and was very prone to become excessively foul. The flow from kitchen and pantry sinks, according to Notter and Firth, would average about four gallons per head per diem, and bedroom slops about five gallons per head per diem.

The points insisted upon were:

1. All waste-pipes should be well above ground-level.

2. All slop-water should run in open gutters, with perforated floors and good bottom-drainage, so that the water might soak away as it runs. Such gutters might with advantage be placed on low banks with sloping sides, and quick-growing shrubs, such as privet, should be planted alongside of them. These sucked up the moisture.

3. No stagnation must be permitted anywhere along a line of drainage, and, with the waste-pipes terminating in the open, no traps were necessary or advisable.

4. Slop-water should never be taken in pipes below the surface of the ground. Subsoil irrigation was a mistake.

5. The waste of the kitchen sink must be strained through a sink-basket and passed through a filter of rough stones before being allowed to flow to a gutter.

If there were sufficient ground to the house, he advocated the treatment of every variety of slops separately; and wherever the waste-waters of a house ran, there was always an increase of fertility and beauty.

DR. THRESH, Medical Officer of Health, Essex County Council, had carefully examined the sanitary arrangements referred to by Dr. Poore, and was much impressed with the apparent success. He dispensed with the sink-filter, and let the water pass through a short length of drain-pipe (to get the sewage clear of the house), and then discharge into the filtering or irrigation channel. The results had been very satisfactory.

DR. MAXWELL ROSS, Medical Officer of Health, County of Dumfries, stated that he also had had an opportunity of seeing Dr. Poore's methods in operation, and had since advocated them in his own district.

HENRY KENWOOD, M.B., D.P.H., F.C.S., spoke on

THE DISINFECTION OF ROOMS BY SULPHUROUS ACID GAS.

It is claimed, mainly on bacteriological grounds, that the process of disinfecting rooms by sulphurous acid gas is inefficient; that the SO_2 generated by the combustion of one pound of sulphur in one thousand cubic feet of space is not sufficient to kill the specific organisms of infectious disease, more especially when no measures are taken to charge the atmosphere with moisture.

He had searched most carefully for the evidence furnished during the year (1895) in a population of 254,000 people, from six sanitary areas in and around London, sulphurous acid being, in every case, the disinfectant employed. There were, in all, 1330 premises disinfected by the local authorities, 409 in respect of diphtheria and 921 in respect of scarlet fever, and 55 cases (4.1 per cent.) of either scarlet fever or diphtheria occurred on the same premises within fourteen days of their fumigation.

But the origin of much of this 4.1 per cent. may be attributed to: Infection from the preceding case; persistence of the same source of infection which accounted for the disease in the original case; the contraction of the disease away from the premises in question within the period above specified; and even the return of clothes and bedding from the disinfecting station.

Sulphurous acid is used to disinfect the walls, ceiling, floor, and bare surfaces in a room. Bedding, clothing, carpets, curtains, etc., should be removed for steam disinfection.

The method consists of two stages: (1) The charging of the atmosphere for from six to eight hours with about one per cent. of sulphurous anhydrid gas, by means of burning one pound of sulphur to every thousand feet of space in the room; (2) the thorough aeration of the room.

The second stage is an essential part of the process, in order to rid the room of SO_2. By some it has been argued that it is this thorough aeration that does the good. It is easily demonstrable that the diphtheria bacillus would be at most attenuated by such aeration, and not killed.

Mr. Walter D. Severn collaborated with him in a few bacteriological experiments, principally directed to the Klebs-Loeffler bacillus of diphtheria, for the following reasons: It is concerned in the production of one of the diseases in which the disinfecting power of SO_2 is most commonly relied upon. It is easily cultivated, its cultures are unmistakeable, and it possesses a rapidity of growth over accidental impurities in the culture media employed.

The room employed was in his own house. It was nearly square, 8 feet 8 inches in height, and had a capacity of 2004 cubic feet. Before each experiment the room was left at rest for some time, the inoculated swabs, etc., were then placed in position, and the room was treated by the man who does the disinfecting work of the parish

precisely as if there had been a case of infectious illness in it. Each experiment comprised six different tests applied at the same time at three different levels in the room —two at the level of the floor, two on a sideboard 3 feet 8 inches from the floor, and two on a bracket 6 feet 6 inches from the floor—to determine the effect produced by from six to eight hours' exposure to an atmosphere containing SO_2 not exceeding one per cent.

In the first series all three swabs and all three lints were sterile.

In the second series a serum-tube inoculated from one swab showed a late (inhibited) growth of the Klebs-Loeffler bacillus after three days, but no growth was obtained from the other two swabs or from the three lints.

In the third and fourth series no growth of *B. diphtheriæ* was obtained from any of the swabs or lints.

In Series 1 and 2 one tin of liquefied SO_2, alleged to contain twenty ounces, was employed in each case.

In Series 3 two such tubes were employed.

In Series 4 two sulphur candles were burned, each containing one pound of sulphur.

Where the diphtheria bacillus was not killed, it was very markedly inhibited, even where the SO_2 did not much exceed one-fourth per cent., and the bacillus was killed where the SO_2 exceeded one-half per cent., the above figures having sole reference to the SO_2 in the air in the center of the room at a height of four feet, and after the lapse of four hours.

SIR CHARLES CAMERON had, twenty-four years ago, made experiments on the action of dry sulphur dioxid and chlorin on vaccine lymph, and found that they only produced effects when used in large quantities; but solutions, even when used in very small quantity, destroyed the virus of vaccine. Lately he had in many cases used the spraying method, for the sake of the delay it saved.

DR. SYMONS, Medical Officer of Health, Bath, desired to know if Dr. Kenwood had met with any instance of injury resulting to subsequent occupants of the rooms. Compressed gas has many advantages over burning sulphur; but even this agent may be useless in the hands of a careless workman who overlooks any outlet. The mercuric-chlorid spray solution had not this disadvantage, and the room could be immediately occupied.

DR. GROVES, Carisbrooke, was glad this subject had been dealt with, owing to the uncertainty caused by recent criticism. If used properly and in sufficient quantity (1½ pound), sulphuric-acid gas was quite efficient. For twelve years he had not known of a recurrent case in his own district after the use of burning sulphur.

DR. F. J. ALLAN, Medical Officer of Health, Strand, was inclined to think that the influence of sulphurous-acid gas had been underestimated, especially when in the presence of moisture. They had not taken into consideration the oxidation and deoxidation which occurs.

DR. KENWOOD, in reply, stated that he knew of no cases of direct injury resulting to persons entering the room after the SO_2 had been liberated. As to Dr. Symons' question whether the control-swabs were subjected to similar conditions of light, etc., as those exposed about the room during disinfection, every care was taken to make the conditions as similar as possible. With regard to Sir C. Cameron's question whether he considered the tubes of liquefied gas more or less efficient than burning sulphur, he believed that one pound of sulphur, when completely burned, gave more sulphuric-anhydrid gas to the atmosphere than twenty ounces of liquefied sulphurous-acid gas, and that this gas was more evenly distributed throughout the room.

SIR CHARLES A. CAMERON, M.R.C.P.I., Medical Officer of Health, Dublin, reported

AN OUTBREAK OF ENTERIC FEVER DUE TO INFECTED MILK.

In May, 1896, the two daughters of the owner of a milk-shop in Meath street were ill with enteric fever. He visited the place and had the children at once removed and the milk in the shop destroyed. Fourteen persons who had been supplied with milk from this dairy were suffering from enteric fever. The cows which supplied the milk were out on pasture. The water in the dairy was pure. The milk apparently became infected from absorbing exhalations from the dejecta of the patients while being carried down the stairs to be thrown into the water-closet or ashpit. He placed some enteric dejections close to a vessel of milk, and in ten minutes found that the milk had become infected, as proved by subsequent cultivations.

JOHN C. THRESH, M.D., D.Sc., Medical Officer of Health to the County of Essex, introduced the discussion on

DIPHTHERIA IN TOWN AND COUNTRY.

He said that the county of Essex had at the present time a higher mortality from diphtheria than any other similar area in the United Kingdom, and certain districts within the county had higher rates than prevail even within the metropolitan area.

He presented statistics which showed a continuous increase, both in the urban and rural districts. Judged either by the case-rate or death-rate, diphtheria was shown to be about fifty per cent. more prevalent in the towns than in the country districts.

With reference to elevation, he found that epidemics occurred as frequently in parishes in hilly districts as in those in the valleys and near the marshes, and on the marshes dotted with farms and laborers' cottages a case of diphtheria is of exceedingly rare occurrence.

The degree of overcrowding and the diphtheria case-rate in tenements of four rooms and under exhibited a close correspondence.

The quality of the water supplies, presence or absence of drainage, the character of the soil and subsoil, seem of of themselves of trifling importance in affecting the prevalence of the disease. Epidemics may occur in the most sanitary, as well as in the most unsanitary, areas. The decreased prevalence of diphtheria in the urban rural districts in July, he suggested, was because that month exhibited fewer variations to cause cold and affections of the throat. In October, when the sudden increase occurs, the weather is more variable, there is a very marked fall in the average temperature and an increase in the relative humidity of the atmosphere—all conditions favorable to the production of the disease.

Investigations of outbreaks, in rural districts especially, give the impression that the rainfall, the fluctuations of the ground water, the temperature of the air and soil, the humidity of the atmosphere, etc., are only of importance in so far as they tend to cause congestion of the mucous membrane of the fauces and render persons so affected liable to be successfully attacked by the diphtheria bacillus should it by any means gain access thereto. To explain the innumerable instances in which an excessive prevalence of sore throat has preceded an outbreak of diphtheria, we must assume either that there has been a "progressive increase of infectivity" or that the earlier cases were not diphtheritic, and that later cases only became so upon the introduction of the specific organism. He had frequently failed to obtain the bacillus from such throats, and had found them, or organisms indistinguishable therefrom, on apparently healthy throats, and consequently his faith was shaken in the "progressive increase of infectivity" theory.

He urged that all medical officers, especially those in rural districts, should give more attention to isolated outbreaks, as they are far more worthy of study and far more likely to lead to valuable etiological conclusions than the investigation of extensive epidemics.

F. A. DIXEY, M.A., M.D., Fellow of Wadham College, Oxford, presented

VITAL STATISTICS OF DIPHTHERIA IN LONDON.

He concluded by a review of the effect of the antitoxin treatment. Comparing the average weekly number of deaths for the last five years, we find that after rising from 26.2 in 1891 to 36.2 in 1892 and 62.8 in 1893, it fell to 51.4 in 1894 and 44.5 in 1895. It is true that the opening months of 1895 promised a greater diminution than that exhibited by the figures for the whole year, and that the intensity of the rise last autumn seems to show that some other factor than the antitoxin treatment must have been concerned in the diminished mortality at the end of 1894; but notwithstanding these facts, which are freely admitted, it would seem that the general run, even of these figures, suggests a conclusion favorable to the efficacy of the treatment. This conclusion becomes strengthened if the case-mortality, or relation of deaths to notifications, is considered. Under this head the main facts are as follows: The number of cases notified during 1893 was 13,694; of deaths during the same year, 3624, giving a case-mortality of 23.8 per cent. In 1894 the corresponding figures were 11,190 and 2674; the case-mortality stood, therefore, at 23.9. In 1895, however, while the notifications rose to 11,229, the fatal cases fell to 2289, and the case-mortality was therefore only 20.4 per cent. —the lowest rate for a whole year yet recorded. The numbers for the first half of the present year are respectively 6193 cases notified and 1239 deaths, which work out to a case-mortality of 20.2 per cent. In view of the fact that, quite irrespective of the number of cases, the case-mortality of the last half of the year is invariably below that of the first, it may fairly be anticipated that by the end of 1896 the year's case-mortality will, for the first time on record, have sunk below 20 per cent. This diminution in case-mortality he could attribute to no other cause than the treatment by antitoxin.

DR. COOPER-PATTIN, Medical Officer of Health, City of Morwich, had noted the association (in his district) of diphtheria notifications with the humidity of the atmosphere. In twenty-five per cent. of the houses infected he had found evidence of persistent dampness of the walls, floors, etc. With regard to the "progressive intensity" theory, he had noticed in seven cases occurring in one house retrogression of intensity of the attack. He believed that bad sanitary conditions could be lived under, even for years, and then the accidental introduction of some new factor led to the occurrence of the disease. This new factor was to be found in the disturbance of excrement during scavenging.

PROFESSOR TREVELYAN believed that until something definite was known about the behavior of the bacillus outside the body, it would seem almost impossible to study completely the prevalence and spread of the disease.

DR. ALLAN, Medical Officer of Health, Strand District, thought that a number of cases notified as diphtheria were in reality scarlet fever; they certainly accompanied one another in a striking manner. He agreed with Dr. Thresh that unsanitary conditions act solely as predisposing influences.

GEORGE LANE MULLINS, M.A., M.D., Trinity College, Dublin, Physician to the Hospice for the Dying, Sydney, contributed a paper on

NEW SOUTH WALES AS A HEALTH RESORT FOR BRITISH CONSUMPTIVES.

GORDON SHARP, M.B.Edin., of Leeds, spoke on

THE SOIL IN RELATION TO DIPHTHERIA AND ITS ORGANISM.

His conclusions were:

1. Diphtheria would appear to be endemic in certain districts. Soils organically laden are dangerous, but much may depend on the nature of the subsoil. Where the subsoil is porous, a neighborhood may be free; where the subsoil is impervious, the surface, at certain seasons of the year, may be a favorable breeding-ground.

2. Soils which would otherwise be sources of the spread of diphtheria are rendered innocuous by deep drainage.

3. The presence of a large quantity of air in the surface soil appears to be salutary, and the contrary holds.

The close connection between enteric fever, scarlatina, and diphtheria has often been remarked, and Bond has especially called attention to the close relationship between scarlatina and diphtheria, and formerly the connection seems to have been even more marked. Thorne has called attention to the fact that as authorities have improved their water supply, enteric fever has declined in frequency, while under the same conditions and with improved sewerage systems diphtheria has increased. Immersion in water for a short time seems fatal to the microbe of diphtheria, while the contrary holds with regard to the organism of enteric fever; both seem to live in sewage. A moist, rather than a water-laden, soil seems to be the home of the organism of diphtheria.

ANNOUNCEMENT.

TRANSPORTATION ARRANGEMENTS FOR THE MEXICAN MEETING OF THE PAN-AMERICAN MEDICAL CONGRESS.

DR. H. L. E. JOHNSON, 1400 L street, N. W., Washington, D.C., has been elected chairman of the Special Committee on Transportation. All communications relative to rates, reservation in the special trains, etc., should be addressed to him. A rate of one fare for the round trip has been secured between St. Louis, New Orleans, and other trans-Mississippi points and the City of Mexico. It is confidently expected that this rate will be extended over the entire territory of the United States. Arrangements are in progress for a splendidly equipped special train of sleeping and observation cars, with first-class dining-car service. Dr. Johnson will presently be in position to announce a rate, which will include railroad fare, sleeping- and dining-car service, both ways, and in the City of Mexico, and covering the expense of various side trips to the most important historic points in the Republic.—Charles A. L. Reed, Secretary International Executive Committee.

SELECTION.

ANOTHER GLOUCESTER OBJECT-LESSON.

IN the daily press of last Saturday, which contained copious extracts from the report of the majority of the Vaccination Commission, there also appeared an item of news of singular significance in face of the conclusions at which the Commission is said to have arrived. This was a statement to the effect that on the previous day at Gloucester a public demonstration had been held by anti-vaccinationists to welcome the release from prison of a defaulter under the Acts. It is not, perhaps, so much a matter of surprise that this should happen in Gloucester, where, after a suspension of ten years, the law is now being enforced, for during this period the anti-vaccination crusade has been, as we all know, most vigorously conducted, and there must be many in that city to whom compulsory vaccination must seem a thing to be resisted to the death. But what is indeed surprising, nay more, profoundly disheartening, is the fact that those people who have suffered so much from the disease, which vaccination prevents and mitigates, should nevertheless seize the first opportunity to show that this bitter lesson has been taught them in vain. We are told that the defaulter in question was in the service of the Midland Railway Company, and that the crowd which accompanied him in his progress through the streets contained many of the employees of this company in their uniform. What makes the affair more shameful still is the notorious fact that in this recent epidemic, of the two great railway companies whose lines converge at Gloucester, the servants of the Great Western Railway Company hardly suffered at all, whereas the disease was rife among the Midland men, the fact being that the former company required their men to be re-vaccinated, while the latter declined to put any pressure upon them at all. Let us hope, for the sake of human nature, as well as our belief in the intelligence of such men, that none of those who took part in this demonstration (which, of course, may have been largely based on the personal popularity of the offender) had suffered in their own families from the visitation of smallpox. It would, indeed, be incredible if any man, whose home had been recently decimated by reason of his own perversity in failing to secure for his children protection from the plague which smote them down, could be so wilfully and grossly blinded by unreason as to continue in the delusion he hitherto held. Have the wives of such men and the mothers of those dead children no voice in the matter; and is there no sense of shame among the people of Gloucester to permit such an exhibition of heartlessness and ignorance to be made in their midst? It is said that Gloucester has been converted by its recent object-lesson, but we await for some overt sign of this "conversion" which shall prove to the world that the vast majority of its citizens no longer have part or lot with those whose baseless propaganda have been the direct cause of so much misery and death.—*London Lancet.*

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDED AUGUST 15, 1896.

HUTTON, W. H. H., Surgeon. Granted leave of absence for twenty days from August 25, 1896, August 13, 1896.

SAWTELLE, H. W., Surgeon. Granted leave of absence for thirty days from August 25, 1896, August 13, 1896.

BANKS, C. E., Surgeon. To assume temporary command of the Service at Vineyard Haven, Mass., for thirty days, August 13, 1896.

BROOKS, S. D., Passed Assistant Surgeon. To assume temporary command of the Service at Cleveland, Ohio, August 8, 1896.

WOODWARD, R. M., Passed Assistant Surgeon. Granted leave of absence for thirty days from August 13, 1896, August 11, 1896.

GREENE, JOS. B., Assistant Surgeon. Granted leave of absence for twenty-three days from September 14, 1896, August 13, 1896.

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 8, 1896.

August 4.—Passed assistant surgeon G. H. BARBER, detached from the "New York," ordered home and granted two months' leave.

Passed assistant surgeon V. C. B. MEANS, detached from the "Maine," and ordered to the "New York."

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 15, 1896.

August 9.—Assistant Surgeon M. K. JOHNSON detached from the U.S.S. "New York" and to the Coast Survey Str. "Bache."

August 12.—Passed Assistant Surgeon G. A. LUNG ordered to the Receiving Ship "Vermont."

August 12.—Passed Assistant Surgeon E. R. STITT detached from the Receiving Ship "Vermont" and ordered home on waiting orders.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 4, 1896, TO AUGUST 17, 1896.

Leave of absence for one month is granted Captain William. D. Crosby, Assistant Surgeon, Fort Missoula, Mont.

The leave of absence granted Major Henry McElderry, Surgeon, Fort Robinson, Neb., is extended two months.

The extension of leave of absence on account of disability granted Major Clarence Ewen, Surgeon, is further extended one month on account of disability.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

THE CLINICAL USES OF THE PREPARATIONS FROM THE THYROID GLAND, PITUITARY BODY, SUPRARENAL CAPSULES, AND BONE-MARROW.[1]

BY RICHARD C. CABOT, M.D.,
OF BOSTON.

To cover the ground with reasonable thoroughness I have had to limit myself in two directions. First, I have kept strictly to the title of my paper and studied only the *clinical uses* of these preparations and not the theory of their nature, the modes of their preparation or action, nor the history of their introduction into medicine. Secondly, I have thought it best to say nothing at all of the uses of the preparations of the thyroid gland in myxedema, sporadic and endemic cretinism, and cachexia strumipriva. The usefulness of thyroid extract in these conditions is now so well established that any discussion of it would be tedious. Therefore, in speaking of the thyroid extract I shall confine myself to its uses in conditions other than those just mentioned.

THYROID EXTRACT.

Besides myxedema, cretinism, and the cachexia following thyroid extirpation, there is a long list of diseased conditions in which thyroid extract has been used, the most important of which are: (1) Simple goiter. (2) Exophthalmic goiter, or Graves' disease. (3) Obesity. (4) Psoriasis and other cutaneous diseases, including alopecia. (5) Tetany. (6) Insanity and various psychoses. (7) Retarded development in children. (8) Chlorosis. The thread that binds all these apparently heterogeneous conditions together is the fact that they all are, or may be, associated with myxedema, and when so associated have been cured or ameliorated by the thyroid treatment. Thus, some myxedematous patients are goitrous, many are fat and suffer from various cutaneous disorders; mental troubles are a very frequent symptom, and retarded development not uncommon. Many myxedematous patients get very anemic, and some, especially those whose myxedema is due to removal of the thyroid, show the spasms of tetany. Hence, it has occurred to physicians to use the thyroid treatment in each of these conditions when occurring without myxedema.

Further, the thyroid preparations have been used in rickets probably from a general sense of its value in diseases of nutrition, and perhaps the same idea may have led to its use in diabetes and gout. It has been used in fibroid tumors of the uterus, and for hypertrophied scars—its marked powers of tissue metamorphosis probably recommending it. Favorable reports of its use in lupus led to its use in phthisis, and, finally, syphilis, cancer, and leprosy, have been experimented on. It is said to be good for piles.

I will take up these various uses of the thyroid extract in what seems to be the order of their importance.

THYROID EXTRACT FOR SIMPLE GOITER.

Relief is sought in these cases either on account of the disfigurement and inconvenience of the tumor, or because of the pressure symptoms which it causes. Without treatment, tracheotomy is sometimes necessary to relieve the distress of breathing.

Out of a total of 322 published cases, 279, or eighty-seven per cent., are set down as improved, and only 43 as not improved (see table). These statistics are large enough to be convincing, I think, of the great value of thyroid extract in simple parenchymatous goiter. There have been, so far as I can ascertain, no wholly unfavorable reports—none where marked improvement has not appeared in a majority of all cases in which any one observer has tried it. Those who have tried the remedy, in large numbers of cases, agree that it is most effective in goiters that are of recent appearance and of moderate size, and especially in those occurring in young people.[1]

Failures are mostly in cystic or colloid goiter, and in middle-aged people who have had the tumor a long time. It seems safe to say that every parenchymatous goiter of recent appearance in a young person can be considerably diminished by thyroid feeding. It is uncommon to see the tumor wholly disappear, only about ten per cent. of the cases having so resulted, but often there remain only a few hard nodules not previously felt, which can be easily dissected out.

[1] Read before the Massachusetts State Medical Society, June 9, 1896.

[1] The younger the better. Thomas reports splendid results in sucklings with congenital goiter.

THYROID FEEDING IN GOITER.

TABLE NO. I.

Author.	No. of Cases.	Cured.	Improved.	Not Improved.	Remarks.
Bruns	60	14	29	17	Used the raw gland itself. "Thyroidism" in 1 case only. 3 relapsed after treatment omitted. Failures=(a) cystic or colloid goiters; (b) adult patients with tumors of long standing.
Kocher	7	0	5	2	The failures were a goiter and a colloid tumor.
Séné	1	0	1	0	
Alexjew	2	1	1	0	
Epelbaum	1	0	1	0	
Ingals & Ohls [1]	50	2	36	11	1 case not heard from. 2 of those not improved were under treatment less than a week. Cystic tumors were not excluded.
Knopfelmacher	22	(12 [2])	5	5	The 5 obstinate cases were also unaffected by the iodin treatment, by ointment, and internally.
Marie	1	0	1	0	Showed diminution in size within 5 days.
Reinhold	12	0	12	0	Insane patients—7 lost an average of 4 lbs. weight in 6 weeks. 2 gained weight (3-9 lbs.). No change in mental symptoms.
Angerer	78	0	72	6	Those not improved gave up treatment on account of "thyroidism;" most lost weight (6 lbs. in 5 weeks'-average), but gained it back later. 2 relapses in 5 and 7 months after omission of treatment. Prefers the raw gland.
Stabel	60	4	56	0	26 cases on raw gland did much better than 34 on tablets; no "thyroidism."
Ewald	19	0	19	0	Used English tablets and finds them much better than German.
Putnam	3	0	?	1	2 not heard from.
Thomas	?	?	all	0	"Splendid results." All in young infants.
Hennig	2	0	1	1	Using "thyrojodin."
Eschler	"many"	"many"	?	?	Does best in young people.
Sanger	1	0	1	0	

Some of the cases show distinct diminution in the size of the goiter after four or five days' treatment, and in several the tumor was entirely gone within a month. After from six to ten weeks' treatment the diminution has usually reached its limit, but some continue to improve for a longer period, and occasionally it is six weeks before any improvement begins.

As most of the statistics are very recent, our knowledge as to the permanency of the cures is obviously very limited. Nine months after the cessation of treatment many of the cases have shown no relapse. On the other hand, Bruns finds three-fourths of his sixty cases begin to relapse three months after cessation of treatment. The statements of observers are not sufficiently full on this point in most cases, and we cannot say at present how frequently the marked improvements above recorded are destined to be permanent, and whether, as in myxedema, we must maintain the thyroid treatment through life to prevent relapse. Those cases which disappear most rapidly under thyroid treatment have shown, according to Stabel, the greatest tendency to relapse. Slight loss of weight during the treatment is the rule, averaging five or six pounds in Angerer's 78 cases. Severe toxic symptoms are rare and can be prevented by care (*Vide infra*).

[1] Including cases reported in letters to the author.
[2] Nearly.

THYROID TREATMENT IN OBESITY.

The vast majority of observers are agreed that most obese persons, and many who are not so, lose weight rapidly during the first week of treatment with thyroid extract, the diet being unrestricted. We can tell to a certain extent what type of obesity is most likely to be benefited. Leichtenstern, Buquin, Kraus, and other observers have noticed that in young, robust, and vigorous, but obese persons, the treatment is not effective. It is especially successful where obesity is associated with pallor, and flabby, doughy tissues, and as such a condition is commoner in women, the remedy more often works well in women than in men. The loss of weight is most rapid during the first week of treatment, but continues more slowly for months in some cases. Among the most striking cases are those of J. J. Putnam, who was the first, so far as I can ascertain, to use thyroid extract in simple obesity. One of his patients lost forty-seven pounds under thyroid treatment. Ratjen reports a loss of fifty-seven pounds in three months' treatment. Rendu's case lost sixty-six pounds in two months with no relapse up to date (one year). A loss of a pound a day for the first week is not at all uncommon.

In most cases this loss of weight represents not simply a loss of fat (and water) from the tissues, but a drain on the lean as well. The excreta show that an increased amount of albuminoid matter is

being burnt up in the body, so that muscle as well as fat is lost. V. Noorden says that thyroid extract is the only known drug that increases the process of oxidation in the body without muscular or glandular exercise. He compares it to the blast from "a pair of bellows rousing the smoldering fire of metabolism to fiercer flames." But as regards the albuminoids of the body, this is just what we want to avoid in our treatment of obesity, and, in fact, it can be avoided if a diet is so arranged that the loss of albuminoids is compensated by an increase in the proteid elements of the diet.

The majority of observers agree that the weight is soon regained after the remedy is left off, unless exercise or careful dieting prevents it. This relapse does not always occur, and is often delayed some weeks, or even months, after the remedy is omitted, but in a larger number of cases the weight begins to increase again very quickly, and not infrequently reaches its former figure within a month. Cases are recorded where patients have actually gained weight during the use of the remedy, but this is very rare.

At the Congress for Internal Medicine, held at Wiesbaden just two months ago to-day, Ewald sums up a discussion on this topic with the conclusion that we have in thyroid feeding a precious remedy in cases of obesity, and one whose ill effects can all be avoided. He recommends that we should never give this treatment to any patient whom we cannot watch closely, for the dangers inherent in its use are considerable.[2] In some of the cases he says the remedy entirely fails, the tendency of the organism to conserve its fat being very strong. He compares such cases to those of pernicious anemia where the preservation of the fat layer up to death is so striking.

THYROID TREATMENT OF OBESITY.

TABLE NO. II.

Author.	No. of Cases.	Loss of Weight.	Duration Treatment	Not Improved	Relapsed.	Remarks.
Leichtenstern and Wendelstadt	27	3-19 lbs.	4-6 weeks.	2	?	Anemic, flabby cases do best.
Rendu	2	66 lbs. in 1, "marvelous" in the other.	2 months.	0	none so far 1 year.	Used tablets of dried extract.
Dennig	5	6 lbs. av.	10-27 days.	1	1	Some show increase of albumin excretion, others do not.
Buquin	3					
——[1]	3	9 lbs ; 16 lbs ; ? lbs.	3 weeks.			
V. Noorden	17	"Considerable."	?	?	"Most"	Finds it useless unless supplemented by diet, but helps somewhat where diet alone fails.
Ingals	2	5 lbs. in 1.	?	1	?	1 case gained 5 lbs. under treatment.
MacKenzie	1	8½ lbs.	1 month.	0	Yes.	Gained back 5 lbs. while still taking thyroid
Smith	1	"Considerable."	?	0	?	
Schlesinger	1	"Very successful."				Tablets of beef thyroid had no effect.
Jerzykowski	10	"Considerable."	?	?	?	Effective only when combined with diet. Used Merck's tablets.
Putnam	6	40 lbs. in 1 ; 47 lbs. in 1.			Yes.	Relapsed when thyroid was omitted. Other cases lost no weight.
Bleibtreu	1	6½ lbs.	?	0	?	Lost albuminoids in spite of increased protein diet.
Meltzer	1	?	?	0	?	Began to improve in 24 hours.
Buschan	1	"much"	?	0	?	
Ratjen	1	57 lbs.	3 months.	0	?	
Barron	5	1 lost 28 lbs., others less.	6 weeks.	0	?	
Becker	2	7 and 10 lbs.	1 week.		Yes.	
Bournville	6	4, 5, 6, 8 and 12 lbs.	8-10 weeks	1	Yes.	Idiotic children all relapsed, some during treatment.
Davies	1	"Considerable."	?	0	?	In this case diet alone was useless, but with thyroids too, was very efficacious.
Williams	7	"Considerable," 36 in 1	?	1	0	Acne rosacea in 2: markedly improved.
Baldwin	3	1 lost 40 ; 1 lost 10 ; 1 lost several lbs.	?	0	3	Weight regained because active exercise not kept up after stopping thyroid extract
Grawitz	2	6 lbs.	1-3 weeks	0	?	Using "thyrojodin."
Hennig	24	2 ten lbs. per week.	?	0	?	Using "thyrojodin" 1 lost 20 lbs. in 23 days.
Ewald	11	8 ten lbs.	6 weeks.	1	"Most"	Using "thyrojodin."
Eulenburg	1	17	?	?	?	
Magnus-Lewy	1	8 lbs.				
Total	145					

[1] Letter to *Munich. med. Woch.*, April 23, 1895.

[2] The danger signals will be briefly considered later on.

Drs. H. C. Baldwin and Harold Williams of Boston, have been good enough to let me mention the results of their experience in the thyroid treatment of obesity. Dr. Baldwin's three cases showed marked loss of weight, but relapsed because exercise was not kept up after the remedy was omitted. Some of Dr. Williams' seven cases have not relapsed and have been in all respects successful. In two an associated acne rosacea improved much during the treatment.

Out of a total of 145 cases which I have been been able to collect, all but 6 got thinner under the treatment, so that, except for the question of relapse, the treatment was successful in over ninety-six per cent. of the recorded cases. How often and for how long relapse can be prevented, either by continuing the thyroid treatment, by exercise, by diet, or by a combination of these measures, we are not yet in a position to know.

THYROID FEEDING IN SKIN DISEASES.

Here the results have been markedly poorer than in goiter and obesity. The remedy has been tried to a limited extent in a variety of diseases affecting the skin but especially in psoriasis. Here, out of 153 cases, only 62 improved during treatment, and of these only 43 had thyroid treatment without local remedies as well, so that only about one-fourth of the cases can be said to be really improved by the thyroid. Further, as the records of these cases are all very recent, and as very little is said as to the presence or absence of relapses, we may well hesitate to believe that the results are really due to the treatment and not to one of the spontaneous ameliorations so common in the course of the disease. Those most sanguine as to the merits of thyroid extract for psoriasis admit that there are many cases in which it has no effect, and some (about one-sixth) who are made worse by it. Byrom Bramwell thinks it a specific for certain types of the disease, but he has never attempted to point out any means of knowing beforehand whether a given case will be made better or worse by it. Radcliffe Crocker of London, considers it very valuable in the "right cases." Crocker says that it "should never be given during the increasing stage of the disease," as sometimes scores of new spots rapidly develop under it. He finds it "very capricious in its ac-

Thyroid Treatment of Psoriasis.

Table III.

Author.	No. of Cases.	Improved.	Not Improved	Worse.	Relapse.	Remarks.
Abraham	65	18 (11 had local treatment, too).	16	15	?	In 11 treatment had not continued long enough to judge of its results.
Thibierge	11	8	3	0	?	Average loss of weight 12 lbs in 6 weeks. Those who improved had local treatment too.
Crary	9	2	7	0	?	Noticed peculiar "meaty" odor to skin.
Busch	24	18	6	0	?	11 "cured."
Bramwell	6	3	3		0	1 very stubborn case cured in few weeks without local treatment; 2 are well (6 months, no relapse).
Squire	2	0	2			
Dill	4	3	0	1		1 "cured."
Davies	2	2	0	0	?	
Hyde	10	0	10			
Eschle	2	2	0			Fresh cases in young people.
Brooks	5	0	1	4		
Phillips	2	0	2			
Putnam	1	0	1			
Preese	1	1	0	0	?	20 years' standing, resisted all kinds of treatment hitherto. "Cured."
Wilson	1	1				Cured—hair reappeared on scalp.
Unna	1	0	1			
Auld	1	1	0	0	?	Stubborn hitherto. "Cured" in 1 week. 1 tablet daily.
Mossé	1	1	0		?	Stubborn case 1 year's standing. Prompt "cure."
Jones	1	0	0	1		Glycosuria during treatment.
Tschernogurow	1	1	0	0	?	"Cured."
Anderson	1	0	1	0	?	
Gordon	1	1	0	0	?	
Combe	?	Yes.				
Epelbaum	1	1	0	0		
Totals	154	63	53	22		

tion, failing in one attack after it has succeeded in a previous one. In children and sound young people it is often effectual." Thibierge believes in its utility but thinks it should be reserved for refractory cases where other remedies fail. It is in such cases that the treatment by thyroid feeding has scored its most striking successes. Age and sex seem to make little difference (Abraham), although Eschle thought fresh cases in young persons were more amenable to this treatment.

In eczema, of a total of 22 cases reported, 9 are set down as "cured," 3 as improved, 2 as unimproved, 1 as worse, and in 7 the result is not clearly stated. Out of 7 cases of ichthyosis, only 1 is called "cured," another was "cured but relapsed when treatment stopped," 4 are improved, and 1 unimproved. Of 4 cases of xerodema, 1 showed improvement; the others none. Two cases of sclerodema are reported; 1 was improved and 1 was "cured." Three cases of acne rosacea gave 2 improved—Dr. Harold Williams' cases—one not improved. Success is mentioned in single cases of adenoma sebaceum, pityriasis rubra, and exfoliative dermatitis, and failure in a case of vitiligo. Four chronic leg ulcers exhibited no improvement. Two cases of alopecia are reported as improved, but MacKenzie claims to have tried it thoroughly and found it useless in this disease. The use of thyroid feeding in lupus seems to have been successful in the hands of Byrom Bramwell. Busch and Abraham reported 12 cases, all more or less improved. In 5 of these, however, local treatment was given at the same time. No complete cures are reported.

THYROID TREATMENT IN PHTHISIS.

This apparent success with cutaneous tuberculosis induced Morin of Neuchatel to try the remedy in pulmonary tuberculosis, and he has been followed by Kraus in Germany, and by T. Smith in England. All of these observers report generally favorable results but nothing very definite or permanent. Morin believes the goiter and tuberculosis are antagonistic. He noted the frequency of atrophied thyroid in phthisis, and out of 71 cases of myxedema found 20 tubercular. Girard of Berne, noted that in the districts where goiters prevail, phthisis is more than twice as common in the non-goitrous as in those with goiters. It is a popular belief in these regions, he says, that goiter and tuberculosis are antagonistic. Morin also reports a phthisical patient who improved markedly after acquiring goiter. In one very tubercular family he found every member phthisical except those whose thyroid was enlarged.

Kraus did not find that phthisical patients lost any weight under thyroid treatment, in fact, notes a gain in weight in one case, but he found no change in the signs in the lung.

During the past ten days I have been giving thyroid extract to six phthisical patients. No particular change has been noted.

THYROID TREATMENT IN SYPHILIS.

This remedy has also been tried in syphilis. Six favorable cases are reported, 5 of them said to be very severe, while in 11 cases no improvement has been seen.

MISCELLANEOUS USES OF THYROID FEEDING.

(1) The first condition I shall mention under this heading is an interesting case of hypertrophied scar, reported by Dr. J. W. White, in which, during thyroid feeding, a large unsightly mass, resembling keloid, shriveled away so as to leave only a linear scar. Dr. White had previously tried various local treatments with no success. (2) The unsuccessful use of thyroid feeding in cancer needs no further comment. (3) At the Wiesbaden Congress of last April, above-mentioned, where the whole subject of thyroid feeding was discussed, favorable results were reported in a great variety of conditions; for example, in chlorosis, rickets, gout, and diabetes. The cases are too few and the reports too meager for us to come to any conclusion about them. (4) A French observer (Jouin) tried thyroid treatment in 5 cases of fibromyoma of the uterus, and noted marked diminution in the size of the tumors in 2 cases, and diminished hemorrhage in 3.

The fact that in myxedematous children and cretins the thyroid treatment is associated with notable growth in height has led some observers to try its effects in dwarfed children not myxedematous, to see if their development could not be helped. I have collected 10 such cases, 3 in idiotic children, and 6 in whom the lack of development was mainly physical. A considerable increase in height was observed in all the cases, but the mental symptoms were not improved.

This brings me to speak of insanity as treated with thyroid. About 60 cases are on record—25 improved. Out of all who have tried the treatment, Bruce, an English writer, is apparently the only one who feels sanguine as to its use. Twenty-one out of the 25 improved cases are his. He considers it "a valuable addition to the alienist's armamentarium in certain cases," and advises its use in cases of melancholia whose spontaneous

improvement had come to a standstill; in maniacal cases without signs of dementia and in stuperous cases in early stages. He finds that women do better under it than men, an observation parallel to the results in obesity. It is contraindicated in emaciated patients, and those who eat poorly, and in cardiac disease. Bruce's experience related to 30 cases, 21 of which showed improvement, amounting to recovery in 14. Clarke, a Canadian writer, finds like Bruce, good results in cases of stupor—several benefited, one or two recovered, one relapsed.

At the Danvers Asylum and the McLean Hospital for the Insane, the thyroid treatment has been tried to a limited extent without any beneficial effect on the mental symptoms. At the Worcester Insane Asylum, Dr. Scribner used it in 10 chronic cases without any effect except a decided loss of weight, amounting in 4 cases to over fifteen pounds.

In epilepsy one author finds good effects and one bad effects from the treatment.

Although starting without any strong bias against the possible utility of thyroid in exophthalmic goiter, I have not been convinced by the literature that a further trial should be given it. Out of 85 cases published, 22 improved, 40 did not, and 23 were worse. The size of the goiter has diminished in many of these cases, but without corresponding general improvement. The number of those made worse is about equal to those benefited, and three-fourths show no improvement. Nevertheless, some actual cures are recorded in obstinate cases, and there seems a possibility that in a certain type of the disease it may do good. In no other disease, however, does it so often do positive harm. On the whole, there is very little reason for hoping that it will do good in this condition.

[1] Counted as 2 in totals.

Thyroid in Insanity.

Table IV.

Author.	No. of Cases.	Improved.	Not Improved.	Remarks.
Reinhold	12	0	12	Goitrous cases.
Bruce	30	21	9	14 quite well.
McClaughry	2	1	1	Goitrous cases.
Easterbrook	1	1	0	Several others benefited.
E. P. Elliot	3	0	3	
Clarke	"several"[1]	"several"[1]	?	Stuporous cases.
Scribner	10	0	10	Lost 5–17 lbs. weight.
Totals	60	25	35	

Tetany.

The last use of thyroid feeding, of which I shall speak, is in tetany. Of twelve recorded tetany cases subjected to it, only four showed improvement, but two of these were very obstinate and long standing cases, and have shown no relapse in a period of five months. Possibly, here, as in many other conditions, thyroid feeding may help to distinguish different types within each disease, according as they are or are not affected by the thyroid treatment. It

Thyroid in Exophthalmic Goiter.

Table V.

Author.	No. of Cases.	Improved.	Not Improved.	Worse.
Bogrof	14	14	0	
Bergmann	7	0	0	7
Mendel	10	0	10	0
Stabel	10	0	7	3
Leichtenstern	4	0	0	4
V. Jaksch	6	0	6	0
Putnam	6	0	6	0
Brissac	1	0	0	1
Kraus	3	1	1	1
Voisin	2	2	0	0
Schuster	"several"[1]	all	0	0
Senator	"several"[1]	0	all	0
Bécléré	1	0	0	1
Silex	1	1	0	0
Lemcke	1	0	0	1
V. Noorden	1	1	0	0
Lanz	1	1	0	0
Revilliod	1	0	0	1
Ferguson	1	1	0	0
Casselbury	1	1	0	0
Shurly	"few"[1]	0	all	0
Joffroy	1	0	0	1
Ewald	3	0	3	0
MacKenzie	1	0	1	0
Sänger	?	0	all	0
Auld	1	0	0	1
Cantu	1	0	0	1
Nasse	1	0	0	1
Totals	85	22	40	23

[1] Counted as two cases in total.

may be that there are the thyroidal and non-thyroidal types of obesity, psoriasis, tetany, insanity, etc. In the case of obesity, we seem to be already in possession of some criteria by which we can tell beforehand whether or not a given case is likely to be benefited. In the other conditions, such criteria are very scanty, but there seems to be some ground for hope that thyroid treatment may enable us to split up several supposed entities of disease, as we have split up jaundice and asthma, and show them to be simply symptomatic of a number of different underlying conditions.

To sum up the impression gained from the study of the literature of thyroid feeding, it seems to be: (1) Of great value in simple parenchymatous goiter, especially in young people. (2) Of considerable value to reduce weight in obesity, especially in the anemic, flabby types, and provided the relapse is prevented by diet and exercise. (3) It seems to deserve a further trial in obstinate cases of psoriasis, sclerodema, and lupus; also in tetany, certain phases of insanity, and retarded development in children. (4) In exophthalmic goiter it rarely does good and often harm. (5) In chlorosis, rickets, diabetes, and tuberculosis, the evidence is not sufficient to warrant inference.

A few words as to the form in which the thyroid is to be given. Many of the most successful recent results in Germany have been with the fresh gland, raw or fried. There is but little doubt that this is superior to the German dried extracts. Whether or not it is superior to English and American extracts, we have no sufficient evidence to show. The fresh gland is very unpalatable, but may be given by the rectum.

Attempts have been made in Germany to extract the active principle of the thyroid gland, and Fraenkel's "Thyreoantitoxin," and Baumann's "Thyrojodin," are now being experimented with in Germany. The latter preparation is an iodin compound, and considerable success in the use of it was reported by Ewald and others at the Wiesbaden Congress. The dosage is exact, and it is free from some of the unpleasant toxic qualities of the dried preparations of the gland.

I have alluded to some dangers attending the use of thyroid preparations. The resultant bad symptoms are probably of two kinds: (1) the physiological action of an overdose of the gland itself, and (2) ptomain poisoning due to products of decomposition included in the dried preparations of the gland. Their two chains of symptoms are often lumped together under the name of "Thyroidism."

"Thyroidism" is first shown by rapid pulse and palpitation; cardiac oppression and angina, even fatal in a few cases, may occur. Anorexia, nausea and vomiting, diarrhea, lassitude, malaise, faintness, vertigo, headache, and pain in back and extremities, are not uncommon; hysterical manifestations and, rarely, aphasia, monoplegia, convulsions, and even coma occur. With some preparations urticaria, erythema, and eczema are produced. An odor to the skin and perspiration is sometimes noted. I have had two patients speak of this.

'In those predisposed to diabetes by inheritance a temporary glycosuria may occur,' and V. Noorden hopes that we may in the future be enabled to make an early diagnosis of diabetes.

In giving thyroid preparations, the best guide is the pulse. *Any considerable quickening or palpitation should lead us to discontinue the drug until the cardiac action is again normal.* There are no dangers in the use of the drug, provided we begin with small doses, from one to two grains of American extracts, and gradually increase, watching the pulse. It should never be given to a patient who cannot be closely watched.

SUPRARENAL EXTRACT IN ADDISON'S DISEASE.

Since Rollesboue's remarkable Goulstonian lectures on the suprarenal bodies, in which he recommends a trial of the extract of these glands for Addison's disease, a certain number of cases have been reported. I have been able to collect only twenty cases, out of which nine have been considerably improved. The use of the preparation is still in its infancy, and these cases represent trials of watery, alcoholic, and glycerin extracts, as well as of the gland itself, raw or dried, so that it is misleading to lump them all together and judge of the results. The various fluid extracts are evidently very inferior to the gland itself, dry or raw. One case, under the care of Dr. F. C. Shattuck, at the Massachusetts General Hospital, I had an opportunty to observe. Dr. Shattuck felt no doubt of the diagnosis, and no improvement occurred until after the use of the dried extract of suprarenal body. The patient is now, to all appearances, well, and has been so for four months. An absolute diagnosis of Addison's disease is, I believe, impossible without an autopsy, so that a certain amount of doubt is thrown on the apparent benefit derived from this mode of treatment in genuine

[1] V. Jaksch (Fourteenth Congress, Wiesbaden) doubts whether the reduction of copper in these cases is always due to sugar.

SUPRARENAL EXTRACT IN ADDISON'S DISEASE.

TABLE VI.

Author.	No. of Cases.	Result.	Remarks.
Parkinson	1	Worse.	Died soon after.
Turney	1	Worse.	Died soon after.
Ringer and Phear	1	Temporarily better.	Died soon after.
Pitres	2	Worse.	Subcutaneous use.
Spellman	3	2 no effect. 1 greatly better but relapsed.	Using alcoholic extract.
Stockton	1	Nearly well.	Bronzing gone.
Osler	1	Much better.	No relapse (3 months).
Sansom	2	Temporarily much better.	Relapsed and died.
Jones	1	"Cured."	
Oliver	2	1 "practically well," 1 greatly better.	1 diagnosed by Pye-Smith.
Maragliano	7	Good results.	Glycerin extracts.
Shoemaker	1	Improved.	
Stewart	1	Not better.	
Epelbaum	2	Much better.	Fresh raw gland.
Zuco and Foa	?	No improvement.	Used watery extract.
Shattuck	1	Apparently well.	
Total	27		

Addison's disease; but when we have such benefit recorded in cases diagnosed by such clinicians as Pye-Smith, Osler, and F. C. Shattuck, we cannot help feeling hopeful about the treatment, especially as on physiological grounds, there seems to be reason to expect that it would work well.

Experiments with suprarenal extract have shown it to have the property of increasing blood-pressure by stimulation of the vagus and cardiac muscle, and also of contracting the caliber of the periphery arteries. Acting on this suggestion, Bates has employed it as a local astringent and hemostatic in operations on the eye, and also in glaucoma and conjunctivitis. Oliver and Clark have employed it with benefit in a case of diabetes insipidus, and its use has also been praised in three cases of diabetes mellitus, and in hysteria, and neurasthenia, with loss of vasomotor tone, and in certain forms of anemia.

It is evidently a powerful medicinal agent, and severe toxic symptoms have been recorded in connection with its use, but on the whole, there seems to be some reason to feel hopeful about its result. Certainly, it deserves a farther trial in a disease for which no other treatment has hitherto availed anything.

EXTRACT OF PITUITARY BODY IN ACROMEGALIA.

The records of this subject are very scanty. I have been able to collect only nine cases of its use. Five of these appear to be more or less improved. Three of these are reported by Marinesco, an Italian. The headache and other pains improved, the general condition was better, and the extremities smaller. One case was able to move the hands better and walk with less fatigue than before. One favorable case comes from England, under Bramwell's care, and another from Germany. In these two, thyroid extract has previously been tried without success. In the German case reported by Mendel, the knee-jerk, which had been absent, returned, and the condition of the teeth and gums improved.

Thyroid treatment has also been tried for acromegalia in ten cases, six of which have improved, and four have not. As both the thyroid glands and pituitary body are sometimes found diseased at autopsy in acromegalia, it may be that the simultaneous use of both extracts will be found useful.

BONE-MARROW.

Since ordinary forms of anemia yield readily to treatment by other drugs, it is chiefly in pernicious anemia and leucemia that we have hoped for help from bone-marrow. But I have been unable to find accounts of a single case of undoubted pernicious anemia which has shown any permanent improvement. In the case of Danforth, which attracted so much attention at the time it was reported in October, 1894, there has since been relapse and death, and there is no reason to suppose that the temporary improvement had any connection with the treatment. The cases of Frazer and Bigger both lack a satisfactory blood examination, and their subsequent progress after the first few months is not recorded. The other cases reported as improved (nine in number) are defective, either as to diagnosis or as to the subsequent progress of the case. Temporary improve-

ments are so common in pernicious anemia with any treatment, as well as without any, that no case can be called cured unless the improvement has persisted at least two years (Cabot). There are no records of improvement in leucemia and and four not improved.

In secondary anemia and chlorosis we have a considerable number of favorable reports. Fifteen cases of chlorosis and chlor-anemia, are all said to have improved, and in two of these, Blaud's pills are said to have had no effect.

Seventeen cases of secondary anemia, including four of rickets, are also recorded as improved. But these anemias are easy to cure, as a rule, and as marrow contains iron, it is not remarkable that improvement was noticed.

Two cases of anemia infantum, pseudo-leucemia, are reported by Combe, a French observer, as cured by bone-marrow, but there is reason to doubt the diagnosis.

On the whole, there seems to me to be less reason to expect good results from the use of bone-marrow than from any of the other animal extracts I have mentioned.

CONCLUSIONS.

1. Thyroid extract is certainly valuable.
2. Suprarenal extract we have reason to hope will be proved so.
3. Pituitary extract we cannot judge of as yet.
4. Bone-marrow is in all probability useless.

THE IMPORTANCE OF EARLY DIAGNOSIS AND TREATMENT OF INFLAMMATION OF THE MIDDLE EAR.[1]

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IT has been said that "an otitis externa any one could cure, but an otitis media no one could cure." How lamentably true this may be after an otitis has become chronic! But it need not be so if vigorous treatment is energetically carried out at the inception of the disease. Lack of recognition of the importance of instituting early treatment of an otitis, is in no small degree responsible for this pessimistic aphorism. How often has it been observed that when the nurse or mother calls the attention of the physician to an otorrhea, the latter would shrug his shoulders and with a reassuring smile nonchalantly say, "Oh, that does not signify, it will take care of itself, just wash out the ear with a little warm water and borax and it will soon be all right."

Again, that ancient fetish, dentition, will be pressed into service and made to play the rôle of scapegoat to palliate the unpardonable carelessness of the attending physician, who explains that the otitis is a relief to the child while teething, with which it is dangerous to interfere.

I most earnestly deprecate and protest against such a *laissez faire* policy, because such lax methods of treatment tend to confirm the opprobrium formulated in the opening sentence of this paper. The large number of people with total or even partial impairment of hearing impresses upon us the importance of early treatment in these cases.

It is a matter of observation that the deficiency in hearing is not the only baneful result of a neglected otitis, but that this loss of the sense of audition is accompanied, in the majority of instances, with an arrest of mental development, or at least a curtailment of mental capacity. The emotional side of the patient's nature also suffers a change, making him morose and suspicious, bringing out the ignoble traits of character, often making the victim a misanthrope, and sometimes a degenerate with criminal tendencies, in consequence of being, through his affliction, denied the advantages of the beneficent social influences and left to his solitary brooding. Though very much has been accomplished in late years in the amelioration of the condition of these unfortunate ones, the facts just stated will be admitted by all.

This demonstrates how important it is to begin treatment early in this class of cases, while from a politico-economic standpoint it is no less important to diminish the number, or, at least, to prevent additions to the number of degenerates and dependents who may become a public charge.

I was present recently at a necropsy held on a child in whom an *otitis media purulenta chronica* had existed for some time. My observations then prompted me to prepare this article. Brain symptoms had developed indicating abscess in that organ, and the skull had been trephined. The autopsy revealed an extension of the disease to the meninges and cerebral sinus, with suppurative thrombotic foci scattered through these parts. I have met with a number of such cases of extension of the inflammation and of the suppurative process to the cerebrum, all resulting fatally.

The frequency of otitis as a complication or sequel to so many of the prevalent diseases should make us conscious of the importance of early care, but, as in so many other things, this very frequency

[1] Read at the meeting of the Northwestern Medical and Surgical Society of New York City, April 22, 1896.

has bred the contempt of familiarity, and the otitis is apt to go untreated.

During the recent epidemic of measles in this city, from October, 1895, to the present writing, many hundred cases of the disease have been treated by me. Of this large number about seventy-five per cent. developed an otitis.

Treatment was inaugurated with the very first appearance of ear symptoms, and I am happy to say that no case was left uncured.

I have also observed, during the past winter, that an otitis complicated, or rather followed, many cases of simple inflammatory diphtheria.

La grippe has been very prevalent among children in my practice during the same period, and a very large number of those attacked have also suffered from otitic disorders. I recall a number of families among whom two or three children presented ear symptoms. In these cases of diphtheria and influenza treatment was also commenced as soon as symptoms of ear trouble were observed. Sometimes in cases of pneumonia in children, when the case is apparently doing well, and improving, there is a sudden change for the worse, a rapid increase in the fever, accompanied by much restlessness and often delirium; examination of the chest does not reveal any exacerbation of the disease, but in all probability an otitis has started up, explaining the violence of the symptoms. In pneumonia of the apex in children this is apt to occur. If such a complication is recognized, early treatment is of great importance. Meningitis, both cerebral, and, more particularly, cerebrospinal, is in very many cases accompanied by an otitis, and these cases are the ones in which treatment, even if begun early, is least efficient.

By the early treatment of an otitis complicating the diseases just enumerated I have saved many from total or partial deafness, which demonstrates that this early treatment is most essential to secure that result before much destruction of tissue shall have taken place. In fact, I hold that the case is not treated in its entirety unless close attention is given to the complicating otitis.

What has been said suggests that it may be *apropos* to treat of the therapeutic measures employed in these cases of otitis. Before considering the treatment to be directly applied to the affection of the ear it will be wise and necessary to pay attention to the state of the mucous membranes of the nasal and nasopharyngeal cavities. It is now conceded by old observers that a great number of cases of otitic disease have their *fons et origo* in a diseased condition of those parts. The inflammatory and catarrhal condition which may exist in the nasal and nasopharyngeal tract will naturally demand treatment in order to benefit the difficulty in the auditory canal.

With this general statement, without particularizing the method or kind of treatment to be employed in the affections of the upper air-tract, I shall dismiss its consideration, as it does not fall strictly within the lines of this paper. Of the treatment of the otitis I shall speak a little more fully. At the outset of the attack, if much pain be present, I order an instillation in the ear of from three to four drops of a watery solution of muriate of cocain of five to ten per cent. strength, as frequently as may be required to allay the pain. The solution should be warmed by placing the bottle containing it in warm water before it is dropped in the canal. In this connection I would enter my protest against the use of oily liquids in the ear, for, in my opinion, they are surgically unclean, offering a nidus for the culture of germs and the accumulation of filth. Nor do I approve of stuffing cotton in the ears, except when there is exposure to a direct current of air, and then it must not be pushed into the canal, but fitted in to conform with the contour of the auricle, in short, laid with the rim of the auricle *covering* the aperture of the auditory canal and not entering its lumen. Warm effusions and vapors I also employ to allay pain. Relays of small bags filled with poppy-heads or camomile flowers heated have also been used with satisfaction. Sometimes irrigation with warm alkaline watery solutions will give relief. If the case be quite severe counter-irritation, particularly in the form of sinapisms to the tragus and mastoid process, is of value. If the inflammation be of a higher grade, leeches may be employed to the mastoid process and tragus, care being taken that the leech does not make its way into the ear, which can be avoided by plugging the latter while the creature is engaged in abstracting the blood.

If the drum membrane be very tense and highly congested then a paracentesis is indicated for the relief of the symptoms.

If an otorrhea, serous or purulent, shall have followed, it has been treated as follows: If it be serous, then a simple warm astringent solution containing sulphate of zinc, or boracic acid, or the like, is employed to irrigate the canal. If the discharge be purulent, from eight to ten drops of the peroxid of hydrogen are dropped into the ear, which is to be flushed out with as much warm water as may be necessary until the outflow returns clear. These irrigations are re-

peated as often as the discharge reaccumulates. A fountain syringe is recommended, but the nurse is warned not to place it at too high an elevation lest the force of the current be too strong, and thus become harmful. After irrigation the canal is gently wiped dry with absorbent cotton until no vestige of moisture remains. Thereupon two or three drops of an alcoholic solution of boracic acid of the strength of from five to ten grains to the half-ounce, are instilled in the ear, warmed in the manner already spoken of. These drops are used whether the discharge be serous or purulent in character. The patient may complain that these boracic-acid drops smart; if not too severe that is of no consequence, in fact, I hold that it is a good indication, for it means that it is stimulating the healing process. Occasionally blood will flow from the ear when the alcoholic boracic-acid solution is used. In this event the stimulation is too active. Under such circumstances, or when the smarting is very painful, a reduction in the strength of the solution is indicated.

If the discharge from the ear is very persistent and resists this treatment, I order irrigation of the canal with a solution of nitrate of silver of from five to ten grains to the ounce, of which solution from one dram to half an ounce is to be added to a pint of warm water. I have frequently seen one irrigation control an otorrhea which had persisted for weeks, and it will be seldom necessary to continue the use of the nitrate of silver solution long.

These cases of otorrhea are sometimes apt to be long drawn out and well calculated to try the patience of both physician and nurse. The physician should encourage the nurse or mother to persevere in the treatment, assuring her that in the end success will follow her efforts, and that if she discontinued the treatment the disease would certainly not get well, but would, in all probability, eventuate in partial or total deafness.

I shall speak of the practice of insufflation of powders, sometimes employed in the treatment of this affection, only to condemn it. In my experience the powder readily commingles with the discharges, forming a hard caked mass, which in its turn becomes a source of irritation and acts prejudicially, both mechanically and chemically interfering with the surgical cleanliness of the parts, often increasing the pain and giving much trouble afterward in its disintegration.

If the patient exhibit any constitutional taint, as strumous, syphilitic, tubercular, or rachitic, the treatment approved of in such cases must be brought into play to reinforce the topical therapeusis.

THE CAUSATION AND THERAPEUTICS OF NERVOUS DISEASES.[1]

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THE medical mind has been recently directed toward the presence and excess of uric acid in the excretions of persons suffering from various forms of nervous troubles, and some French investigators go so far as to state that nervous disease and uric-acid diathesis are one and the same thing. This is based largely upon the investigations and statements of Haig and Bouchard. I believe, however, that the position assumed by Herter and Horbaczewski is correct, and that uric acid, largely derived from nuclein, is the detritus of tissue-waste and a resultant of nerve-functioning, and that the presence of uric acid is an indication and a manifestation of nutritive and digestive disturbance.

We find many cases of nervous trouble, especially those of a functional nature, associated with large quantities of uric acid in the excreta. Many interesting facts, such as the injection of the blood of an animal which has been very much fatigued into one that is rested, the resting animal showing signs of fatigue, demonstrate the effects of these effete products. Many waste products of an intricate nature are produced and thrown off into the circulating medium during the expenditure of force by the organism, and these must be carried off through the channels of elimination to prevent the danger of auto-intoxication. We must get rid of the waste products of nutrition if we would utilize the beneficial and assimilative properties of the hemic pabulum. A person's system containing effete material resembles a city whose vast system of streets has remained uncleaned for some time, with ashes and garbage in the roadway and orange and banana peels on the sidewalk. The physician should be the street-cleaning department, the board of health, with its disinfectants, and the head of a police inspection system that will prevent a reaccumulation. When this interesting condition is presented for our consideration, what can be deduced from it for therapeutic purposes? Elimination must precede nutritional treatment, and the careful and proper regulation of food, or, for a while, its restriction in very narrow limits, together with the drinking of large quantities of water—hot, cold, plain, distilled, alkaline, or mildly laxative, as the

[1] Read before the Kentucky State Medical Society.

case may require, will greatly assist toward recovery.

Hodge found, after excessive functionating of a nerve-cell, a diminution in the size of the cell, a lessened power to absorb staining reagents (showing imperfect assimilation and nutrition), and later vacuolation, as the substance of the cell is used. The nucleus then becomes jagged and irregular in outline. After a while it is impossible for the cell to send out impulses, and it requires a period of rest for recuperation and a storing of energy. Vas and Mann, quoted by Starr, also found that when activity reaches the point of fatigue, a shriveling-up occurs, changes go on in the chromatin, which is used up so that the fatigued cell does not absorb the staining reagents. A neurasthenic is frequently weakened by hereditary entailment, his nerve-centers poorly constructed, or his vascular supply just sufficient to maintain him during health at a moderate pressure while at work. When he begins to increase this pressure, we find that the cell begins to suffer from imperfect nutrition. With this come defective elimination and irritation, resulting in the production of various forms of headache, vertigo, inability to work and concentrate the mind, great irritability, and general malaise. In this age, every energy is directed toward an increase of wealth; and with the night, instead of rest and recuperation, the struggle to obtain social position goes on apace. I often wonder what the next generation will be, and how they will stand the strain to which their fathers and mothers have succumbed. There are a large number of men and women who are living absolutely on the brink of nervous bankruptcy, who have no reserve nerve-force in case of some sudden and exhaustive demand upon the system. That most beautiful mechanism, which in health regulates the caliber of the blood-vessels—the vasomotor system—becomes unstable, and the sufferers become victims of manifestations which are, in health the result of natural emotional causes. Pain (and worry, anxiety, and tribulation are simply modifications of pain) is accompanied by vasomotor change; and those of you who have had to do with the neurasthenic, know that the hot flash, the sudden flush, the fulness of the head, the excessive sweating, and variations in the renal secretions are merely manifestations of this vasomotor instability.

And this, again, is not a condition favorable to the elimination of those effete materials that are in themselves toxic and irritating to the nervous system.

How can a happy result be best brought about? We have to consider (1) elimination, (2) unstable and defective nerve-force, (3) nutritional disturbances, (4) irregular or unstable vasomotor supply. It requires a combination of methods that, alas! the pharmacopœia does not offer; and while medicinal agents are required, nay, are of benefit, still I do not believe that they are capable alone of curing any case of this character. Massage is of advantage in certain well-selected cases, but I believe its range is limited and its results to be obtained only by the most careful regulation of its force and duration. As a rule, too much is given, both in quantity and in force. Electrotherapeutics offers a better field, and in galvanic, faradic, and static currents we find that, by selecting cases, excellent results may be obtained. In my opinion, hydrotherapy is by far the most satisfactory, pliable, and useful remedy that the medical profession possesses.

Rest is frequently prescribed for these cases, and just as frequently as it is, it fails. The reason for this is apparent. The exhausted nerve-cells have not sufficient inherent recuperative power to utilize what pabulum is brought to them. It is this non-attention to the eliminative process that robs rest of many of its advantages. I have found rest beneficial at the end of a course of treatment, when the vitiated nerve-elements have been restored to their normal condition, and the patient is in a position, as it were, to "clinch" the advantages gained by treatment. In these cases sleep is of signal benefit, particularly that which is obtained through the hypnotic influence of hydrotherapy. Medicinally, nervin and hematic tonics are indicated, and strychnia, quinia, iron, arsenic, and zinc head the list. If much digestive trouble exists, stomach-washing, the mineral acids, and gentle laxatives are indicated.

As time goes by, the belief grows in force, and is strengthened by experimental and clinical knowledge, that underlying epilepsy is an autoinfection, arising from the stomach and intestinal tract, coupled with imperfect or defective elimination. Careful regulation of the diet and strengthening of the vasomotor system is the one way by which at least one-third of the cases of this terrible disease may be combated.

I have a case just now in which this treatment is beautifully exemplified. Formerly under heavy doses of bromid the attacks were recurring, and the patient was reaching a condition of despair. Under a carefully regulated diet and two weeks of careful observance of her case, I was able to prevent the recurrence of the attacks, which were somewhat periodical, by keeping the intestinal

tract well cleaned out and disinfected, and utilizing such hydrotherapeutic methods as insured active and well-distributed blood-supply. In the Flechig treatment in those chronic, depraved, and most trying of cases, we have a system of treatment which, I believe, is the best that can be offered to these patients. I have found that during the primary stage, or the one during which opium is used, that much of its evil effects, soporific, depressing, and infective (from constipation), can be overcome by using eliminative measures, in the shape of large quantities of water internally, and the douches in their various modifications, externally. In the second stage, or that during which bromid is used, a cup of black coffee in the morning (only), the use of a hot-air bath for five minutes, followed by a rain bath and a good rubbing, will entirely remove the languid and depressed feeling and prevent the acne from appearing.

Where a headache has lasted for a long time, we should certainly examine the renal secretion, as in certain cases I have found unquestioned evidence of incipient or actual Bright's disease. Many headaches are lithemic in origin. Diet and elimination form the keynote to the treatment. I have seen cases of headache lasting from twenty to twenty-two years, and due unquestionably to meningeal thickening, relieved by the systematic application of static electricity and hydrotherapy. I have one patient, who, eighteen years ago, had an attack of meningitis of the convexity, and who has ever since suffered from intense headaches.

There is no question in my mind that this case, for instance, had in and around the meningeal thickening considerable vasomotor disturbance, which, under overwork and emotional strain, was evidenced by the increased throbbing, fulness in the head, feeling of tension, and increased pain. He improved from the first, under hydrotherapy.

A tolerant nerve-cell is a nerve-cell that is well fed, just as a tolerant, amiable, "happy-go-lucky sort of a fellow" is one that is well fed and moderately obese. This is a very important factor in the prognosis of some cases that are usually pronounced incurable, from the simple fact that while the meningitis is not cured, taking my case as an example, still we can frequently establish toleration and obtain what, to the patient, is a true cure. To us it may be symptomatic, but to him it is a verity.

The importance of acute infectious diseases as the origin of many nervous troubles, functional and organic, cannot be overestimated. For this reason they deserve careful consideration, especially diphtheria, grippe, scarlatina, and those diseases that are accompanied by the pyogenic microorganisms. My records show large numbers who directly trace their neural breakdown to that scourge, the grippe, while the paretics and ataxics will nearly always be found to have some vascular derangement, to which we can reasonably lay the cause of the disease. Weigert holds that the process which we term sclerosis in the nervous system is merely a manufacture by nature of a supporting substance within the brain or cord, to take the place of an atrophied nerve-cell or fiber. His order of causal factors is (1) overwork, (2) exhaustion, (3) atrophy of the neurons, continued for a time and then followed by a growth of connective tissue in the form of sclerosis, limited to a functional tract. It seems to be a conservative process on the part of nature to increase the supporting network as the cellular substance shrinks, and if this be true, and it is the most rational of all explanations of these scleroses, then the statement that these diseases in their primary stages are curable holds good. The writer made this statement in an article published about two years ago, and while that statement was based purely on clinical experience, he now has the statement of one of the greatest living pathologists to fortify him in the position he assumed.

CLINICAL MEMORANDUM.

A CASE OF POISONING BY SCOPOLAMIN.

BY MATTHIAS LANCKTON FOSTER, M.D.,
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A FEW years ago scopolamin in the form of the hydrobromid and hydrochlorid was introduced into ophthalmic practice as a mydriatic. Its action is very energetic and of brief duration, and for a while it did not seem improbable that it might supersede other mydriatics, particularly for the purpose of determining errors of refraction. Observations recorded by a number of competent investigators show that after the instillation into the conjunctival sac of from one to five drops of a one-fifth of one per cent. solution of either of these salts of scopolamin a maximum dilatation of the pupil is obtained in from ten to sixty minutes, while paralysis of the ciliary muscle proceeds *pari passu* with the pupillary enlargement, and the eye is then ready for examination. This effect gradually passes away, and has totally disappeared at the end of five or eight days.

If the action of scopolamin upon the general system could be eliminated no better mydriatic for refraction work could be desired, but unfortunately it not infrequently produces toxic symptoms of various degrees of severity. No fatal result has, I think, yet been reported.

According to the observations made by Dr. Smith, an effect upon the heart usually becomes manifest in from

five to ten minutes after the instillation of a single drop of a one-fifth of a one per cent. solution, the pulse becoming soft and compressible, while the rate is usually lessened, sometimes to a marked degree, but is occasionally increased in rapidity or becomes irregular.

A number of cases of poisoning have been reported, in which dryness of the throat, muscular weakness, dizziness, nausea, restlessness or sleepiness, a weak and rapid pulse, and sometimes a flushed face, have been the prominent symptoms, but in none of these did the symptoms as reported appear as grave as in a case which occurred in my evening clinic at the Manhattan Eye and Ear Hospital while under the care of Dr. Kendall in August, 1895. It is for this reason that I feel impelled to place the following case on record:

A young laboring man, who had been treated for a considerable time for a mild form of trachoma, was found to be astigmatic, and it was decided to be advisable to examine him under the influence of a mydriatic. Scopolamin was chosen, and four instillations of one drop of a one-fifth of a one per cent. solution were made in each eye at intervals of ten minutes, commencing at 8 P.M. Fifteen minutes after the last instillation, a little over an hour after the first, the patient complained of dizziness, and was obliged to lie down. This was followed by dryness of the throat, nausea and attempts to vomit, flushing of the face, decrease in the strength and increase in the rapidity of the pulse, symptoms which increased with alarming rapidity for half an hour, and reached their culmination in about two hours. At the end of half an hour the pulse was over 160 per minute and very weak, the face was growing darker until it became mildly cyanotic, the patient was unconscious and wildly delirious. The muscles of the extremities were frequently and strongly convulsed. When at the worst it took the strength of several men to hold him, and some doubt was expressed by the gentlemen gathered about him whether his struggles were the result of the active delirium which was present or to spasmodic contractions of the muscles from the irritation of the drug. The pharyngeal muscles appeared to be in a state of paresis.

These symptoms began to abate in about two hours under energetic treatment with morphin and whisky, and the improvement progressed so rapidly that the patient was able to leave the hospital and walk home at 6 A.M., ten hours after the first drop was instilled. Nausea and dizziness persisted for a day longer. The recovery from the mydriasis was in the usual time.

It should not be inferred from such a history as this that scopolamin is too dangerous a drug to use, but it should be understood that it is too dangerous a drug to use without proper care and precaution. Certain individuals are without doubt more susceptible to its influence than others and the rapidity of its action suggests a way in which it may be possible to avoid giving an overdose. The observations in regard to its effect on the ciliary muscle show that the time necessary for complete paralysis varies from ten to sixty minutes, and that the quantity of solution of the usual strength required to produce this effect is from one to five drops, hence it is wise to test the accommodation before the second and all succeeding instillations to avoid the unnecessary use of the drug after the ciliary paralysis is complete. Another practical precautionary measure is to occlude the tear-ducts by means of pressure by the patient's finger as soon as a drop has been instilled into the conjunctival sac. This prevents the passage of the solution through the lacrimal passages into the nose and its absorption through the mucous membrane. When these two precautions are observed the danger of poisoning is reduced to a minimum.

MEDICAL PROGRESS.

A New Method of Entero-anastomosis.— SOULIGOUX (*Gazette heb. de Méd. et Chir.*, July 23, 1896) has devised a new method of intestinal anastomosis, which consists in suturing two loops of gut without opening them. With a strong clamp he pinches, in a longitudinal direction, the free border of the two intestinal loops, and then stitches them together along one margin of the compressed areas. These areas are then touched with caustic potash, and the suture completed around them. The cauterized portions of the gut necrose, and fall into the lumen of the intestine, and communication is established. In animals, this takes about forty-eight hours. The operation has been performed upon man several times with success.

Chaput has performed a similar operation, using a Paquelin cautery in place of caustic potash. If the stomach enters into the anastomosis, he first removes the muscular coat of the portion involved. Retention of feces is a contraindication. The chief advantage of the operation is the rapidity with which it may be performed.

The Treatment of Ileus.—As a result of his investigations, NAUNYN (*Sep.-abdr. d. Mitteil. aus d. Greuzgebiet. d. Med. u. Chir.*, 1 Bd., 1896) gives relatively exact rules for the treatment of ileus, as follows:

1. The prognosis of the operative treatment of ileus is most favorable on the first and second day of its existence; on the third day it is markedly worse.

2. The best results (seventy-two per cent. of recoveries) are obtained in those cases in which obstruction is due to a rupture, not including cases of strangulated hernia.

3. In primary peritonitis, this condition and not the resulting ileus, must determine the operation.

4. (*a*) In chronic intestinal stenosis, the necessity for an immediate operation does not often arise. (*b*) The seat of obstruction can usually be made out exactly if it is located in the duodenum, descending colon, sigmoid flexure, or rectum; otherwise it can only be guessed at. (*c*) Strangulation can often be diagnosed, and demands an immediate operation.

5. In three classes of ileus an exact diagnosis is possible. (*a*) Ileus from foreign bodies, *e.g.*, gall-stones; (*b*) valvulus of the sigmoid flexure; (*c*) intussusception.

Of treatment other than surgical, Naunyn says:

(1) Avoid cathartics. (2) Far better is the employment of large enemata of water, or injections of oil, five to sixteen ounces. Injections of air are less serviceable. (3)

Opiates should not be given in large doses. (4) Washing out the stomach is advisable whenever there is fecal vomiting, or the stomach is overfull. (5) Food and drink should be reduced to the minimum. (6) Puncture of distended intestinal coils is of doubtful value.

Etiology of Serous Pleuritic Effusion.—In the *Zeitschrift f. klinische Medicin*, Bd. 29, H. 5 and 6, the cause and nature of serous effusions in the pleural cavity are thoroughly discussed. The author of the article, ASCHOFF, placed before himself three questions:

1. Is every idiopathic pleurisy, *i.e.*, a serous pleuritis without known cause, tubercular in its nature?

2. Is there such a thing as an acute isolated rheumatic pleurisy, which is to be looked upon as equivalent to a preceding acute attack of rheumatic arthritis?

3. Do serous pleuritic effusions ever contain pyogenic organisms without later becoming purulent?

Bacteriological examinations were made of two hundred serous exudates, with the following results:

Serous effusions are nearly always free from pus-producing microörganisms. If the latter are present, the exudate will become purulent, except possibly in exudates containing pneumococci. Purulent pleuritic effusions sometimes heal completelv without operation.

The occurrence of isolated rheumatic pleuritis is questionable—at least it must be very rare. The pleuritic effusions occurring in rheumatism are almost invariably the result of a cardiac lesion. No special benefit has been observed by the administration of salicylic acid.

The so-called idiopathic effusions are almost always tubercular. They may, however, disappear perfectly.

Cholecysto-gastrostomy.—TERRIER (*Gazette Hebdom. de Méd et de Chir.*, July 16, 1896) reports a case in which, upon opening the abdomen for obstruction in the gall-duct, due to cancer of the pancreas, he performed the unusual operation of forming an anastomosis between the gall-bladder and the stomach, which was more readily accessible than the intestine. Recovery followed the operation, and there was no disturbance due to the outpouring of bile in the stomach. The patient died some months later of disseminated carcinoma, and upon autopsy, the anastomotic opening was found to be ample. Only two other cholecysto-gastrostomies have been performed.

Elimination of Microorganisms by Glands.—BIEDL and KRAUS (*Centralbl. f. Inner. Med.*, July 18, 1896). By a series of experiments upon dogs, the authors found that bacteria injected into the veins are eliminated by the kidneys and liver, but not by the submaxillary salivary gland. In one instance the bile which, before the injection, was sterile in thirteen minutes, contained the injected staphylococci. The saliva remained sterile.

The experiments, besides establishing the fact that normal blood-vessels may be traversed by microörganisms, also show the character of the liver as an eliminator of germs from the blood.

Results of Five Hundred Vaginal Hysterectomies.—JACOBS (*Centralbl f. Gynäkol.*, No. 29, 1896) finds that the mortality of five hundred hysterectomies for various causes is only 3.4 per cent. Among the cases are forty-nine of carcinoma uteri without a single death. Two of the deaths were from intestinal obstruction, brought about by adhesions of the intestine so low down in the vaginal region that the author thinks they might have been avoided by vaginal tamponade. Practical directions for the operation are given: Short clamps hold better than long ones. For the first part a thermocautery is preferable to the knife as saving time and blood.

When the extirpation is complete, Jacobs ties off the clamps on the broad ligament, stitches the peritoneum together, and thereby renders the patient more comfortable, and avoids danger of intestinal adhesions and herniæ in the vagina. In inflammatory cases, drainage of the peritoneal cavity is necessary, gauze being employed.

Valvular Rupture Following Traumatism.—DREYFUS (*Gazette hebdom. de Méd. et de Chir.*, June 7, 1896) has found that blows upon the chest, or falls, or sudden violent efforts, may produce rupture of any of the cardiac valves, more often of the aortic or mitral ones. The accident is marked by the signs of an acute insufficiency, and the diagnosis lies between rupture of the aortic or cardiac valves, angina pectoris, and pseudo-angina pectoris.

The prognosis is grave, depending upon the extent of the rupture and the condition of the mycocardium. Possible complications are secondary infections, infective endocarditis, rupture of the septum, aneurism, and embolism. The medico-legal point is brought out that a blow on the chest may kill a person without external evidence of the violence, and that an examination of the cardiac chambers may be necessary to show the cause of death to be rupture of some of the valves.

THERAPEUTIC NOTES.

The Successful Treatment of Hay-fever.—DR. SETH SCOTT BISHOP (*The Laryngoscope*, 1896, No. 1, p. 21) considers that the uric-acid hypothesis explains the symptoms. In addition to local treatment, meats, sweets, wines, and beer, should be reduced as much as is possible, and the diet limited to fruits, vegetables, milk, and fats. The treatment of the lithemia is substantially based upon Haig's work, and consists of salicylate, salicin, and lithium. Tablets, each containing morphin $\frac{1}{12}$, atropin $\frac{1}{600}$, and caffein $\frac{1}{6}$ grain, are efficacious in checking the sneezing, watery discharge, and stenosis.

Painless Extraction of Teeth.—SCHLEICH'S (*Therap. Monatsch.*, May, 1896, p. 269) cocain solution, employed to produce infiltration anesthesia before extraction of a tooth, is as follows:

℞	Hydrochlorate of cocain . .	0.2 grm.
	Hydrochlorate of morphin . .	0.025 "
	Sterilized chlorid of sodium . .	0.2 "
	Antipyrin	2. "
	Guaiacol	2 drops
	Sterile distilled water, q. s., or .	100 grm.

Anesthesia, produced by injecting this fluid, is said to continue about half an hour.

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SATURDAY, SEPTEMBER 12, 1896.

THE PRISON LABOR QUESTION.

ABOUT a year ago the NEWS[1] discussed several aspects of the section of the New York State constitution which prohibited the employment of prisoners at productive labor. The evils of such legislation were pointed out, not only from an economic, but also from an ethical point of view. Among other things, it was shown that the burden of increased taxation, resulting from the necessity to make good the deficit consequent upon the withdrawal of such labor, would eventually fall upon the community, and with especial weight upon those least able to bear it, and whose own wages would not be increased by reason of the new legislation. This position is amply sustained by the annual report of the Brooklyn Penitentiary, recently issued, from which it appears that during the year ending July 31st, the net earnings and receipts of the penitentiary fell off from $32,754.33 to $7,981.36, although the reform had been in operation for but a few months. As the running expenses of the Brooklyn Penitentiary are upward of $140,000 per annum, it will be seen that a large sum of money that has hitherto been derived from the salutary occupation of the prisoners, will have to be raised by increased taxation. What is true of the Brooklyn Penitentiary in this connection is equally true of other penal institutions in the State of New York. We have dealt here only with the economic aspects of the question, as its other aspects have already been considered at considerable length.

[1] October 12, 1895, p. 409; October 26, 1895, p. 473.

RECENT PROGRESS IN MEDICINE.

SERUMTHERAPY AND LUMBAR PUNCTURE.

FOR one who reads European medical literature to any extent, it is not possible to resist the conviction that the serum mode of therapy is rapidly establishing itself as an enduring principle of wide application in therapeutics. During the past six months, all other forms of serumtherapy have been so overshadowed by the antitoxin treatment of diphtheria, that knowledge of them is much less universal than it otherwise would be.

The treatment of diseases produced by streptococci has been developed to a considerable extent on the European Continent, and particularly in France, where its introduction was due largely to the labors of Marmorek, Charrin, and Roger. In a case of hemorrhagic septicemia reported by Ballance and Abbott, in a recent number of the *British Medical Journal*, the infection was so severe that lymphangitis, adenitis, vomiting, chills, high temperature, scarlet, septic erythema, puffy face and eyes, and mental stupidity, were noticed within the first thirty-six hours after the infection. At the end of the second day, the patient's condition became alarming; the temperature was nearly 105°, pulse 150; rash, brilliant red and hemorrhagic, mental hebetude, vomiting, bleeding from the nose and pharynx, and slight albuminuria were present. Sixty hours after infection the first injection was given. Within six hours improvement set in, followed by rapid recovery.

The injections were made into the loin and abdominal wall, and after the first eight (of 3.5 c.cm. every four hours) had been given, the succeeding twenty were increased each to contain 7 c.cm. The writers suggest the possible use of the serum in fracture of the skull in which there is risk of suppurative meningitis, in acute necrosis, acute septicemia and pyemia, rapidly spreading gangrene

and cellulitis, erysipelas, general suppurative peritonitis, and in the septic complications of middle-ear disease. They believe that the proper way of administering it is to begin with moderately large doses, 20 c.cm., to give the injections frequently, and as soon as beneficial effects are manifest, to reduce the dose to about 7 c.cm.

The serum used was from the blood of asses. The ass receives during several months increasing injections of living virulent streptococci. The antistreptococcic serum has therefore antimycotic rather than antitoxic powers. Tests applied to the serum after each injection showed a progressive increase of bactericidal properties. The fact that streptococci may remain in the blood of animals for several days after their infection, makes it imperative to remove all chance microbes by filtration through porcelain.

It is well known that the danger of death in scarlet fever is enhanced greatly by the suppurative complications that follow that disease. Baginsky of Berlin, has put Marmorek's serum to the test in fifty-seven children affected with scarlatina. He says that it is so antipathic to the complications of this disease that it reduces the mortality from thirty to forty per cent.

Josias (*Semaine Médicale*, May 20, 1896) has had a larger experience with the antistreptococcic serum in scarlet fever. He injected forty-nine children in the first period of the disease, each with 5 c.cm. of serum obtained from sheep. With the exception of slight urticaria, no bad symptoms resulted. He also injected ninety-six children with horse serum in the second stage, with an average quantity of 10 c.cm., but some of the patients received as high as 90 c.cm. Complications resulted in twenty-nine of these cases. The mortality in cases which used the sheep serum was only about one-half as great as in those in which no serum was used.

It must be remarked that the difference in mortality rates, which these writers speak of, may be accidental, for not infrequently much greater variations in the death-rate of epidemics of scarlet fever occur, even if the cases are allowed to take their course without particular treatment. If the serum treatment can be given without danger of any ulterior consequence, and if there are grounds for belief that it may prevent the suppurative complications and sequelæ of this disease, it deserves the fullest trial. Apparently, the only word of warning necessary is that great care be used in the preparation of the serum.

The diagnostic value of lumbar puncture, or of puncture of the subarachnoid space in the lumbar region, is now universally conceded. Weichselbaum has described a special microörganism which occurs in pairs and quadruplets, lying with their broad sides opposed, not lanceolate, and situated chiefly within the cells. On account of its location the name of *Meningococcus intracellularis* was given to this organism. Weichselbaum claimed that it was the cause of meningitis. This claim was contested, but it is now known that the pneumococcus, which for a time was considered the causative element in meningitis, produces a purulent form of that disease, while the intracellular coccus of Weichselbaum is the cause of epidemic cerebrospinal meningitis. It is between these two forms of meningitis, particularly, that lumbar puncture may be utilized to make the diagnosis. If the fluid withdrawn contains the cocci of the one form or of the other, and if cultures made from it produce the respective diseases in susceptible animals, the diagnosis of the variety of meningitis will be made, and the prognosis confirmed, for in epidemic cerebrospinal meningitis, the prognosis is immeasurably better than in the purulent form.

Heubner (*Deut. med. Woch.*, July 2, 1896) was able, by means of an examination of fluid from the subarachnoid space, to establish just this distinction. The operation of tapping the subarachnoid space in the lumbar region is such a simple and inconsiderable one, that it is well perhaps to remember that in some conditions, such as tumor or abscess of the cerebellum, it is not unattended by real danger, not to speak of the aggravation of the symptoms which it causes.

JOSEPH COLLINS, M.D.

ECHOES AND NEWS.

Argon and Water.—Argon has been combined with water by Professor Villard, of the Paris École Normale, at a pressure of 200 atmospheres.

A New Disinfectant.—A gas, obtained by the partial combustion of methylated spirits, has been successfully

tried as a disinfectant by the Antwerp Medical Commission. It is non-toxic, and free from corrosive action, and is said to destroy all trace of bacteria.

The Recrudescence of St. Ronan's Well.—On September 10th, the pumproom at St. Ronan's will be opened. The access of ordinary spring-water had destroyed the prestige of this spa, familiar to all readers of Scott. There are two waters, a saline and a sulphur.

Longevity of Human Life Increasing.—A German statistician has calculated that of every 1000 persons, 100 reach the age of 75, 38 the age of 85, and only 2 reach 95. In the seventeenth century, the average duration of life was only 13 years, in the eighteenth, 20, in this century 36.

Milk Inspection in New York.—Milk Inspector Dockery of New York City, has just made his annual report, which shows that in nine months he has inspected no less than 3700 cows, and condemned 7300 gallons of milk. He is the first man in his office to enforce the regulations, and the result has been a marked decrease in infant mortality.

The Plague in Hong Kong.—The total number of cases of bubonic plague in Hong Kong from January 1st to July 20th, was 1158, of whom 1013 have died. Dr. Yersin, a French bacteriologist, claims to have discovered a serum which cures the disease and confers immunity against it.

Philadelphia Hospital.—A position as permanent resident physician at the Philadelphia Hospital is vacant, and is shortly to be filled. For the proper incumbent, the position is a most desirable one, offering large opportunities for a wide experience. A fair salary is paid, and board and residence in the Hospital are provided.

Carrier Pigeons in Medical Practice.—A doctor in the Highlands of Scotland, whose patients are scattered over a wide district, takes carrier pigeons with him on his rounds, and sends his prescriptions by them to the apothecary. He leaves pigeons, too, with distant families, to be let loose when his services are needed.

Formaldehyde in Consumption.—Dr. Francisque Crôtte has been using gaseous inhalations of formaldehyde, assisted by the application of electricity to the chest, for aborting consumption. Out of about eight hundred cases, he claims to have successfully treated six hundred. A committee of the French Academy of Sciences has been appointed to examine and report upon the treatment.

Mississippi Valley Medical Association.—The program of the meeting of this Society in St. Paul, September 15th to 18th, promises a feast of good things, both scientific and social. The expedition to Yellowstone Park is a feature of unusual attractiveness, and offers an opportunity which will doubtless be improved by all who can afford the time.

The Consumption of Alcohol.—Frenchmen consume more alcohol than other Europeans, according to figures put before the Basel Congress for Alcoholism. In the computation the amount of alcohol in light wines and beer is included. The average annual consumption of alcohol per head of population is 13 quarts in France, 10 in Switerland, Belgium, and Italy, 9 in Germany and England, 4 in Sweden, 3 in Norway, and 2 in Canada.

Tannoform.—In *La Belgique Médicale* Drs. G. de Buch and L. de Moor describe the therapeutic effects of tannoform, which is precipitated from a solution of tannin in formaldehyde by adding hydrochloric acid. The authors have used it externally in the treatment of old indolent ulcers, and internally in infantile diarrhea. It is said to combine the astringent effects of tannin with the antiseptic and drying properties of formaldehyde.

Obituary.—Dr. Alexander Buchannan, a specialist in pulmonary diseases, died at his home in New York, of tuberculosis, contracted, it is believed, from his patients. He was born in Glasgow, and began his medical studies in New York, but graduated from the College of Physicians and Surgeons of Glasgow. He returned to the United States, and has since practised in New York. He was the author of a number of treatises on consumption and other pulmonary diseases.

Condemned Tenements Destroyed.—The work of the New York Board of Health in tearing down condemned tenements continues. They have now attacked the rookeries in Chinatown. In several cases the owners of the houses had informed Chinese tenants that the Health Board had no legal right to destroy the premises, so the coolies remained till axmen began their attack on rotten timbers, when they swarmed out like rats. This movement will be sure to arouse owners to the necessity of putting their houses in proper sanitary condition.

New York Almshouse Abuse.—The Commissioners of Public Charities for a week past have been investigating the condition of the people confined in the almshouse. Enough has been learned to justify the assertion by President Croft that fully twenty per cent. of the inmates on Blackwell's Island are improper charges upon the city. This means that between four and five hundred people possessing means themselves, or having friends able to support them, are living at the city's expense. One inmate died a few days ago leaving $4000 in a savings bank.

Haffkine's Anti-cholera Serum.—Dr. Simpson, the health officer of Calcutta, who has been investigating the Haffkine cholera treatment for the past three years, has just issued his report. Among 654 uninoculated persons there were 71 deaths (about 11 per cent.), while among 402 inoculated persons in the same households there were 12 deaths, less than 3 per cent. Among 5000 coolies, working in the tea gardens in Cachar, 2000 have been inoculated. Fifteen of these were attacked by cholera and four died, but among the other 3000, 154 were attacked and 60 died.

Pasteur's Tomb.—The crypt under the principal entrance of the Rue Dutol Institute, which is to contain Pasteur's tomb, is rapidly approaching completion, and his remains will probably be transferred to it from Notre Dame on December 27th, the anniversary of his birth.

At the entrance of the vault is the following inscription in French: "Happy is he who carries within himself a God, an ideal of Beauty, and obeys it; an ideal of Science, an ideal of the virtues of the Gospel." In the carving of the interior are depicted the animals and vines that Pasteur rescued from disease.

Brooklyn's Water Supply.—For many years Brooklyn enjoyed a water supply of exceptional purity. The experience of the last year or two proves that this is no longer the case. As a matter of fact, Brooklyn has nearly exhausted the sources from which good water can be obtained on Long Island. Already it has been practically forbidden to draw any more from Suffolk County, and there are complaints in various neighborhoods that the local supply of water has been interfered with by the large draughts of the city. The question arises, where shall she go for a sufficient supply of pure water?

Montenegrins' Powerful Voices.—The Montenegrins are gifted with probably the most powerful voices in the world. The distance across which they can shout is extraordinary, and they are in the habit of carrying on ordinary conversations across a tract of country which the utmost shouting of an ordinary man could scarcely traverse. A few years ago, when a murder was committed near the Austrian frontier, the news was carried throughout the entire country, and the army was mobilized within a couple of hours, simply by shouting the news from cliff to cliff and from town to town, with the result that the murderers were quickly caught.

The Antagonism Between Chloroform and Hydrocyanic Acid.—Professor Hobday, in an article in the *Journal of Comparative Pathology and Therapeutics*, recounts a number of experiments made to determine the antagonism of hydrocyanic acid and chloroform. In the lower animals, chloroform kills by narcotizing the respiratory center, of which hydrocyanic acid is a very rapid excitant. In the first series of cases, in which respiration had ceased through the action of chloroform, Scheele's acid was injected subcutaneously, and artificial respiration resorted to. Professor Hobday is convinced that the use of the acid is a most important adjuvant in resuscitation. In the second series, the antidotal power of chloroform in prussic acid poisoning was shown.

The Cocain Habit in New Orleans.—A druggist of New Orleans, gives, in the *Picayune*, the following account of the use of cocain by the native darkies: "How on earth these ignorant people ever learned of the effects of this powerful and dangerous drug I am at a loss to say, but I know it as a fact that some drug stores in this city sell enormous quantities of the stuff to the darkies in five-cent packages. The demand for it is so great that they keep the stuff in little papers which they retail at five cents, and it is quite frequently the case that the darky doesn't even open his mouth to say what he wants, the trade is so well established. He simply goes into the drug store, throws down his nickel on the counter, and is given a cocain package without his ever opening his mouth—just as he would slouch into a beer-joint and get a glass of beer." Such an abuse should receive the prompt attention of the Board of Health.

What is an Accident?—A physician of Essex county, New York, while driving between Hayne and Ticonderoga, was overcome by exhaustion arising from an injury sustained a year previous. He stopped his horse and proceeded to give himself a hypodermic of morphin. His horse started suddenly and the needle was driven further than he intended. Cellulitis ensued and he was disabled for twenty-two weeks. He brought suit against the Interstate Casualty Company, which had insured him "against bodily injuries sustained through external, violent, and accidental means." The presiding judge of the Circuit Court of Essex County dismissed the complaint. The Albany Court of Appeals, by a majority of three to two, decided that the jury should have been allowed to determine whether the injury was accidental or not. The court held that the injury could not be called accidental, if it was caused by the morphin or by the uncleanliness of the needle.

The Nomenclature of Diseases.— The second decennial revision of the "Nomenclature of Diseases," embodying the most recent views on the nomenclature and classification of diseases, and prepared by a committee of the Royal College of Physicians of London, has been issued. Tetanus, actinomycosis, foot and mouth disease, pellagra, Hodgkin's disease, and diabetes insipidus appear in the list of the so-called general diseases for the first time. Tetanus is placed between septicemia and tuberculosis among diseases due to specific microörganisms. Rheumatic fever, despite the evidence in favor of its being a specific febrile disease, appears between pellagra and rheumatism and gout. Membranous croup is made synonymous with diphtheria. Puerperal fever has been expunged from the official nomenclature, and pyemia, septicemia, or sapremia in puerperal women, are to be described as puerperal pyemia, septicemia, and sapremia respectively. In the appendix, containing a list of vegetable parasites, the tubercle and anthrax bacillus are given as the cause of these diseases, but the diphtheria bacillus is described as occurring in the lesions of diphtheria, and the spirillum of Asiatic cholera as occurring in the intestinal epithelium and contents in cholera.

Greater New York Charter.—The sub-committee of the Greater New York Commission has prepared chapter 19 of the proposed charter, which provides for a Department of Health, under a Health Commissioner to be appointed by and removed at the will of the Mayor, with a term coextensive with that of the Mayor. The chapter provides that the department be divided into two bureaus; one under a "sanitary superintendent," who must be a physician, and the other under a "register of records," who, without fees, must record births, marriages, deaths, and inquests. The Health Commissioner has power to declare and abate all public nuisances. The proposed law practically embodies existing provisions relating to the registry and duties of plumbers, superintendence of improvements in and erection of buildings, the prevention of nuisances

from uncleanliness, defective drainage, and the disposition of garbage and other waste. Vaccination is provided for, and authority is given to the department to close streets, forbid communication, and quarantine neighborhoods, as well as vessels and buildings. In tenements erected after June 16, 1897, all sleeping-rooms must have a window, at least twelve square feet in size, admitting light and air directly from the street or yard.

Enforcement of the Mercantile Establishments Law.—This law, which regulates the employment of women and children in mercantile establishments in New York, went into effect September 1st of this year. Already the Board of Health has divided the city into inspection districts, and inspectors have begun the work of seeing that the law is enforced. The law contains the following provisions: "No male under sixteen years of age and no female under twenty-one years of age shall work more than sixty hours in any one week. No child under fourteen years of age shall be employed. A register shall be kept of the names, etc., of all employees under sixteen years of age, and no child under the age of sixteen years shall be employed without first obtaining a certificate from the Board of Health. Suitable and proper washrooms and water-closets are to be provided, and water-closets assigned to women and girls to be wholly separate and apart from those assigned to males. Suitable seats for female employees must be furnished. Basements where women and children are employed can be so occupied only after a permit for the same has been granted by the Board of Health. Forty-five minutes shall be allowed for the noonday meal in each establishment."

SPECIAL ARTICLE.

DISCUSSION OF THE TREATMENT OF HEMOPTYSIS.[1]

THE subject was introduced by Charles E. Quimby, M.D., of New York, who spoke of the diversity of method used by various practitioners and teachers, and the great need of setting our approval on what is useful and, at the same time, condemning injurious measures.

Dr. Quimby said: Of the two causative factors, vascular tension and degenerative changes in the vessel walls, it is evident that the latter are not subject to modification within such time as will render them a basis for treatment of an existing hemorrhage. The possibilities of influencing the arrest of hemoptysis must, therefore, be sought in one or more of three universally accepted lines:

1. Modification of vascular tension.
2. Increase in the coagulability of the blood.
3. Mechanical and chemical aids to clot-formation.

In the first of these there has been the greatest apparent antagonism of methods. So long as we recognize a gangrene, due to the prolonged use of ergot, no one can well deny that extreme arterial constriction produces capillary anemia. But, all the vasoconstrictors produce systemic even more strongly than pulmonic contraction, and the consequent increase of arterial tension must be transmitted back through the heart and pulmonary veins until it is felt in the capillary circulation of the lung. Even if this were not important, there would seem to be the greatest uncertainty of producing and maintaining the requisite degree of constriction to cause persistent capillary anemia, and anything short of that must increase the hemorrhage, for even involuntary muscles soon become exhausted and refuse to respond to the sharpest stimulation. Most serious of all appears to me the objection derived from the pathology of the disease. It is not questioned that mural degeneration of the bleeding vessels is the most important cause of the hemorrhage, yet it is in these vessels and those immediately adjacent, which also cannot be supposed to have escaped entirely degenerative changes, that muscular contraction is absolutely necessary. If but one of them is unable to respond to the stimulus of ergot, or to bear the increased strain, all arterial contraction becomes not only useless, but absolutely harmful. This argument, with certain clinical evidences that ergot quite as frequently augmented as retarded bronchial hemorrhage, led me, some eight years since, to abandon the vasoconstrictors and their ally, the ice-bag, which I had been taught to use, and to direct my arterial therapeutics to the development of low tension in the pulmonary circulation. This is accomplished by both active and passive measures. Since muscular action and mental anxiety are cardiac and vascular stimulants, complete rest, both physical and mental, is imperative, not only for its direct influence in quieting the heart's action, but also to increase the influences of other measures. Personally, I make no examination of the chest until the hemorrhage has ceased, as none of my therapeutic measures are influenced by the location of the trouble, it being understood, of course, that sufficient is known to differentiate a hemorrhage of phthisical from one of cardiac or other origin. An initial dose of some preparation of opium I regard as routine treatment in all cases, for not only is the general nervous excitement, so often the predominant cause of the vascular disturbance, controlled thereby, but rest of the affected lung is also secured through the coincident arrest of cough. In cases of profuse hemorrhage, however, probably less is gained by complete arrest of cough than is lost in the dangers incident to the retention within the lung of large amounts of blood. Morphin should here be used to modify, not to arrest the cough.

Active diminution of pulmonic vascular tension is most fully obtained by, first, general lowering of blood-pressure; second, diversion of the blood from the lung to other parts. To secure the former, my main reliance is upon aconite, which is given in a full initial dose, and repeated as required to maintain the desired vascular quietude. In cases which present the symptoms of shock from the outset, although often with rather a tense pulse, morphin alone, in small repeated doses, not only relieves the shock but lowers vascular tension and equalizes the circulation.

The blood may be diverted from the lung to the thoracic wall, the alimentary mucous membrane, and the abdominal glandular organs. To this end, in all except mild cases, I apply counter-irritation by means of turpen-

[1] Meeting of the American Climatological Association at Lakewood, N. J., May 13, 1896.

tine stupes or mild mustard plasters, to the entire back and sides of the thorax, endeavoring so to temper them as to maintain a sharp capillary hyperemia, which is continued until all bleeding has been absent for some hours. In mild cases, a similar and sufficient derivation is more easily obtained by way of the alimentary canal alone.

Having seen some of the "old women's remedies" of my youth reappear in the garb of "modern scientific discoveries," I was led to a consideration of the use of salt, which has resulted in my using it constantly for hemoptysis, upon what I consider a truly scientific basis. Undoubtedly, a more pronounced and persistent effect is gained from the Epsom or Rochelle salts given to the point of free catharsis, but I am convinced that a primary hyperemia of the alimentary mucous membrane is developed more speedily by reflex action through the gustatory nerves from salt taken in the mouth, and that this hyperemia is sufficient to have a decided and valuable influence on pulmonary circulation. I supplement its action by the more powerful salines in the more severe cases. Since the action of salt is purely reflex through the nerves of taste, its value does not depend upon the amount taken, but upon its persistent use. In very obstinate cases the more stimulating or irritant cathartics may be given.

As regards the remedies used to increase the coagulability of the blood or to produce a local astringent effect, the possibility of their reaching a bleeding point in any efficient amount, always seemed to me so remote that I have never yet prescribed one of the astringents.

Astringent inhalations seem, *a priori*, more reasonable than internal astringents, and a most gratifying experience in the mechanical treatment of pulmonary disease has led to some attempts in rather severe cases of hemoptysis to develop atmospheric compression of the bronchial vessels by compelling the patient to expire through a restricted opening, as a pipe-stem, straw, or even the compressed lips. A sufficient number of cases have not been seen to justify any positive statements, and the measure is presented rather as a suggestion.

In presenting a summary of my own treatment of bronchial hemorrhage, no claim is made of anything new; but simply that it is based upon a well-defined principle, has a definite object in view, and that the measures form a harmonious whole. It includes: 1st, rest; 2d, morphin; 3d, aconite or other vascular sedative; 4th, dry salt and a saline cathartic; 5th, counter-irritation; 6th, obstructed expiration. It excludes: 1st, astringents; 2d, ice; 3d, stimulants; and 4th, the vaso-constrictors.

The following statements are the answers in substance of the several gentlemen to this question: "Will you state just what you would do if called to a case of moderate or severe hemoptysis, it being assumed that it is a bronchial hemorrhage, dependent upon tubercular disease of the lung?" It was understood that the answers do not include what might be done as a placebo for the patient and friends, nor indicate treatment in detail.

Dr. Delafield affirms these two broad propositions: (1) Such hemorrhages are never fatal, and are dangerous to life only through the succeeding extension of the tubercular process. (2) No therapeutic measure has any appreciable effect in determining the arrest of the hemorrhage. He, therefore, limits his treatment to reassuring the patient and making him comfortable.

Dr. Draper follows a rather expectant plan of treatment in the milder cases, but when the hemorrhage is well defined in a case of definitely determined tuberculosis, his chief reliance is upon full and absolute rest in connection with opium, although he generally gives some ergot. When he has reason to believe that the hemorrhage is localized and forms a congested area about tuberculous deposit, he applies ice to the chest over the seat of hemorrhage. He never uses the mineral astringents.

Dr. Jacobi regards every bronchial hemorrhage in phthisis as presenting serious possibilities, having seen a primary hemorrhage prove fatal in a patient who had never presented any symptoms or been suspected of having any tubercular disease. He insists upon absolute rest, allows no talking, and makes only such examination of the chest as is necessary to determine the seat of the hemorrhage, which can be done by auscultation alone. He allows the patient but little fluid. In therapeutics, he relies mainly upon acetate of lead and opium, though he directs that digitalis be given at the outset, followed by injections of ergot from time to time. The lead he gives in divided doses, uniformly through the day, and thinks it has been condemned by others because used in too small doses. He states that an adult patient may take from two to four grams of acetate of lead in twenty-four hours, and continue the dose for from two to four days. The lead is given in combination with opium, amounting to daily doses of from one to four decigrams, the indications for the opium being the general quieting effect. The digitalis, on the other hand, he says, should be given in one or two large doses of from eight to ten minims of a good fluid-extract at the outset, and repeated in from six to eight hours. The ergot also is given in an initial full dose, and repeated as may be necessary to maintain arterial contraction. Externally, he applies ice over the seat of the hemorrhage, and ligates the lower extremities in severe cases to retard venous flow. In all cases the bowels are opened freely until the hemorrhage ceases.

Dr. Janeway insists upon absolute rest in all cases, not allowing any physical examination even, except auscultation, until at least four days after the hemorrhage has entirely ceased. Therapeutically, he employs opium, both for its influence on the general nervous excitement, and to quiet the cough when that is prominent. For a direct effect upon the hemorrhage itself, he regards atropin as preferable to ergot. He gives cathartics to obviate the constipating effects of the opium, and thus to avoid the dangers incident to straining at stool. When the pulse is frequent and strong and not quieted by the opium, he uses aconite. Externally, he applies the ice-bag or counter-irritation to the affected side, rather giving the preference, if any, to the counter-irritation. In case the hemorrhage is prolonged and not arrested by the above treatment, he resorts to inhalations of turpentine, with the proviso that they must be begun carefully, and at once stopped if they excite an irritative cough. He does not employ astringents, but if he did, acetate of lead would be the one chosen.

Dr. Kinnicutt gives absolutely nothing by the mouth. He ascribes the very greatest importance to rest, absolute and continuous, physical and mental. Recognizing not only the prominence of nervous excitement and mental shock, and their influence in producing vascular activity, but also the physical and local disturbance produced by cough, he employs morphin, hypodermically, to control the former and moderate the latter. He does not employ ice externally, except in the more severe cases. He has absolutely no faith in astringents or ergot.

Dr. Peabody similarly bases his treatment upon that complete rest, which is made possible and fully obtained by hypodermics of morphin. He lays rather more stress, however, upon the value of ice externally for its action in causing a reflex contraction of the pulmonary vessels, and constantly employs ligature of the extremities in all severe cases. Negatively, he condemns all astringents as absolutely bad, except acetate of lead, which is thought to have a slight value in cases of moderate and persistent oozing, but to be entirely worthless in severe hemorrhage. He also specifically opposes all inhalations.

Dr. A. A. Smith also regards absolute all-round rest as the *sine qua non* in the treatment of bronchial hemorrhage, and he pays special attention to relieving mental anxiety from fear, in addition to securing the usual physical quiet. His medication is begun by a hypodermic of morphin, which he specifically states is *not* to be combined with atropin, on account of the effect of the latter in stimulating the circulation. In addition, he uses bromid of sodium when there is great mental excitement. If the hemorrhage starts with a rise of temperature, he uses one of the coal-tar series, of which phenacetin is considered the best. They are intended to quiet an excited circulation, and their dosage is to be governed by this effect. He allows patients to continue the use of salt as a placebo, and is not displeased if it causes nausea, as that is attended by a diminished circulation. Dr. Smith makes special mention of continuing the opiate for several days. He also places his patients on a milk diet at once, and, after allowing them to get up slowly, still restricts their diet, forbidding for some time all red meats, stimulants, and stimulating food. He regards all the astringents as utterly worthless, and ergot and ice, externally, as equally bad.

Dr. A. H. Smith insists upon rest and opium as the basis of all treatment in pulmonary hemorrhage, making special mention of the dangers from percussion and an over-zealous physical examination. Morphin he uses for its quieting effect and to moderate cough. If the pulse is hard, tense, and small, or if the patient suffers from a sense of oppression in the chest, he uses nitro-glycerin. More commonly he gives ergot, which he regards as especially valuable when the pulse is soft and weak, and in cases of distinctly capillary hemorrhages, which are moderate but persistent. For the astringents he has no use.

Dr. William H. Thomson lays no great stress upon rest, unless the hemorrhage comes on with high temperature, or there is reason to believe that the bleeding was started by exercise or physical strain. He relies almost entirely upon acetanilid and atropin, which he gives about every three hours, in doses of from three to four grains of the former combined with $\frac{1}{100}$ of a grain of the latter. In cases which give the history or present the physical evidences of an antecedent pleurisy, he straps that side of the chest firmly, believing that the tension from old fibrosis is often a prominent cause of these hemorrhages. He would insist also upon such quiet as would prevent strain of pleuritic adhesions. He does not employ the astringents or ergot, and makes no mention of any external applications or inhalations.

The treatment of bronchial hemorrhage, as deduced from these reports by a majority vote of eight to one, would be upon the general plan of vascular sedation with a lowered blood-pressure, and would include the use of: (1) Rest; (2) morphin; (3) vascular sedatives; (4) ice, perhaps (?) to which may be added in the same line, as having been mentioned without opposition; (5) saline cathartics; (6) ligation of the limbs; and (7) counter-irritation in place of ice. It would exclude the use of astringents or vaso-constrictors.

John H. Musser, M.D., of Philadelphia, made a report on the treatment of hemoptysis as practised by thirteen physicians of note in that city. The following is an analysis of the methods adopted:

1. *Rest.*—This, as was naturally expected, was enjoined by all. In nearly every instance it was urged that the rest should be in the recumbent posture. A number, however, urged that the patient should be in a semi-upright position, or the shoulders elevated. The internal use of opiates was advised by most of the writers, of the bromids by one person. The cough is to be controlled, and this is obtained by the use of opiates also.

2. *Local applications.*—Cold on the chest, in the form of ice usually, was advised by five of the reporters. In two of the five, its use was advocated in hemorrhages in the second or third stage of tuberculosis only. Most of them required the ice to be applied over the affected part.

3. *Diet.*— This was referred to by two only. One advised liquid diet, the other a readily digested but not low diet.

4. *Inhalations.*—The use of inhalations was objected to by three of the reporters, and advocated by one, who suggested that it must not be used if there is much cough.

5. *Dry cups.*—One of the reporters suggested drying-cup if there appeared to be congestion of the lungs.

6. *Internal remedies.*—The internal remedies advised may be divided into three classes: (1) Drugs to quiet the nervous system and allay the cough. (2) Drugs to allay arterial excitement. (3) Astringents. All enjoined the use of opium with the exception of two, both of whom, I think, overlooked its use. Morphin, however, was objected to by one very strongly. Professor Hare believes that the use of morphin causes more blood to be sent into the leaking blood-vessel of the lung, and advises the bromid of sodium in full doses by the rectum if it cannot be given by the mouth, and, if the pulse is strong, combined with chloral in doses of five or ten grains. Arterial sedatives were advised by two of the reporters. One thought well of the use of aconite in the hemorrhage of the early stage of phthisis, or of antipyrin in one- or

two-grain doses with morphin. Another thought that cardiac sedatives were admissible when given in moderate doses for hemorrhage in either the first or second stage. By some, astringents were advised without qualification; by others, their use was admitted, although their value was doubted. Thus, one reporter says he uses ergot in early hemorrhages with grave doubt; another, that he uses ergot and gallic acid, but does not believe they are of much account. They are given, however, with the hope that they may be of service. The following are recommended: Ergot or ergotin by the mouth or hypodermically, turpentine, gallic acid, fluid extract of hydrastis, the oil of erigeron, acetate of lead, sulphuric acid, *Lycopus virginica*. Gallic acid is advocated by the majority of the reporters. Ergot is advocated by five. Its use is not mentioned by four, and two report against it absolutely, and two others consider it of doubtful use. Acetate of lead has two advocates, turpentine two, and the other astringents one each. One of the reporters considers turpentine the only hemostatic of any value; another thinks turpentine or terebene of greater service than any other drugs in the late hemorrhages of tuberculosis, particularly if combined with morphin and antipyrin. Common salt was advised by one of the reporters,

Most of the reporters agreed that the treatment was the same, whether hemorrhage took place in the first or later stages. One of them insisted on small doses of astringents in the first stage, and of large doses in the latter stages. Another insisted on the local use of ice in the latter stages only; another, that turpentine should be used at this period. One insisted that the recumbent posture should not be assumed when the hemorrhage took place late in phthisis, and that opium should not be given or the cough in any way allayed at this period of the disease, on account of the danger of the accumulation of blood in the air-cells. Apparently, from the above, no difference in the treatment of the two stages existed.

From this review it may be said that the treatment of hemoptysis, as followed out by representative practitioners in Philadelphia, includes rest, mental and physical, the local application of ice, the use of opium, and, with considerable doubt as to their value, the use of astringents of the class referred to in the above analysis.

Dr. Musser fully indorses the above in so far as rest, ice, and opiates are concerned; he is not willing to indorse the use of astringents. He would urge the use of dry cups in certain well-defined conditions, and favors the use of saline catharsis if the patient is robust, and the condition of the primæ viæ points to its necessity.

Algernon Coolidge, Jr., M.D., of Boston, reported the practice of eighteen physicians in Boston: Seventeen gave the preference to opium among drugs, ten preferring morphin as the best form of administering it. Three allowed codein as a substitute. Six used ergot as a routine measure, but of these, four doubted its usefulness. Eight found it useless, and two considered it positively harmful. Seven were opposed to high altitudes, while five considered high altitudes not contraindicated.

R. H. Babcock, M.D., reported the practice of twenty-seven physicians in Chicago. Of these, eighteen insist upon absolute physical rest in recumbent or semi-recumbent positions, and three added that they permitted no talking. Cold to the chest is ordered by thirteen, usually in the form of ice. Nine administer opium, and eight morphin hypodermatically. Ergot is employed by fifteen, a few, however, stating some doubt as to its utility. One said he thought ergot only proved efficient when in doses sufficient to produce nausea. One administers Tancret's ergotin, hypodermatically, in doses of from six to eight minims, and mentioned no other treatment. Eleven are positive that ergot has no efficacy. Six make use of acetate of lead, either with or without opium; two tannic acid, two gallic acid, one dilute, and another aromatic sulphuric acid. Six prescribed ipecac, five the syrup, and one the powder in an emetic dose, after the manner of Trousseau. Four gave aconite, and two *Veratrum viride*. Salt is recommended by seven, one of whom relies largely upon it. Four advise mild laxatives, but do not specify the particular laxative employed, except the advocate of salt, quoted above, who recommends phosphate of soda. One only employs sprays to the larynx and trachea of solutions of iron, liquor ferri subsulphatis, ten to twenty minims to the ounce, or the tincture of the chlorid of iron, from twenty to thirty minims to the ounce of water, repeated three or four times daily. One uses phenacetin internally, depending upon the cause of the hemorrhage, and after the attack, rest, light diet, and tincture of iron internally. Two speak of employing ligatures to the extremities close to the trunk during the attack, one specifying constrictions of the lower extremities to prevent the return-flow of blood to the lungs. With one, hemoptysis ceased twice after atropin, hypodermatically, had produced dryness of the mouth. The advisability of light unstimulating diet, was dwelt upon by three.

Dr. Babcock relies on the use of phosphate of codein, hypodermically, or by the mouth, to quiet the cough; syrup of ipecac to the degree of nausea; Hunjadi or Rubinat water to open the bowels. He employs a hypodermic injection of one-fiftieth or even one-twenty-fifth of a grain of atropia sulphate to stop hemorrhage.

Dr. S. E. Solly, of Colorado Springs, said: Hemorrhage from large vessels and large cavities is relatively more frequent in Colorado than elsewhere, though the general tendency of altitude, through lowering blood-pressure, is undoubtedly to diminish the frequency of hemorrhages, and this belief clinical statistics confirm.

The first great danger in profuse hemorrhage from a large vessel is the drowning out of the patient by the blood, and it is advisable to turn him in such a position that the blood can flow readily out of the mouth; the plan of laying him on his back in bed is the worst possible position when he is freely bleeding.

The application of ice to the heart seems to quiet the organ, and thus assist in checking the hemorrhage. I am skeptical about the value of astringents, such as tannic and gallic acids, nor have I been satisfied with the use of large doses of lead, as recommended by Williams.

My clinical experience has been favorable to the use of ergot in large doses, given subcutaneously, at intervals of from four to six hours in the twenty-four. I believe a

common cause of failure with ergot is its irregular and insufficient use and administration by the mouth. There are, however, cases in which ergot is absolutely useless.

I also regard atropin as an extremely valuable remedy in serious cases, particularly in those in which ergot has proved a failure. But it must be given, hypodermically, in large doses, such as the one-fiftieth of a grain. A small dose of atropin is not beneficial. Thus morphin is best given without the usual one-fiftieth of atropin. It is stated that atropin in small doses raises the blood-pressure, while in large doses it lowers it. The reason that atropin is often successful in cases in which ergot is a failure, may be because in certain conditions lowering the blood-pressure, as by large doses of atropin, is essential to success, though in certain other conditions, raising the pressure is no detriment, or not sufficient to offset the other beneficial qualities of ergot.

Opium in some form should always be given, as well as other suitable remedies, when it is desired to arrest the hemorrhage and check cough. But there are cases of congestion in which it is unwise to do this.

Dr. W. D. Robinson, of Philadelphia: I have used calcium chlorid with success, and find that given between the bleedings, it is of advantage.

Another agent that I use is morphin, given to the degree of profound narcosis. I have given one-eighth of a grain once in forty minutes, until the patient is deeply under its effect. By stopping cough and local irritation we put the parts in splints, as it were, until firm healing of the bleeding point obtains. The morphin in full doses, by which the patient is kept practically in unbroken, sound slumber for from eighteen to twenty-four hours, is especially efficient in cases of frequent recurrent bleeding. The drug that I have found most prompt and efficient in stopping a hemorrhage, has been the hydrochlorate of hydrastinin in one-fourth grain hourly doses, hypodermically.

Dr. Boardman Reed, of Atlantic City: Regarding the use of ergot in these cases, I have not found it of any value, and have even thought that in some cases the results were positively harmful by contracting the arterioles throughout the body generally, and thus raising the blood-pressure. The mineral astringents have done good service in my hands, especially the aromatic sulphuric acid and gallic acid. There can be no doubt that these drugs increase the coagulability of the blood and thus assist directly in lessening the tendency to hemorrhage.

Dr. R. C. Newton, of Montclair: I wish to say that bromid of potassium fills the indications in many of these cases, especially when used in conjunction with Dover's powders and an ice-bag to the chest. Each case must, of course, be managed according to the surroundings and the indications. Dr. Babcock's suggestion of large doses of atropin, hypodermically, is a very good one.

Dr. Jas. B. Walker, of Philadelphia: I am glad to hear Dr. Fisk speak of oil of erigeron. I have long depended upon its congener, oil of turpentine, in hemorrhages from mucous membranes, and am surprised at the few references to its use in text-book and journal articles. In hemoptysis, it is of special service, and this is not surprising when its hemostatic properties are so well known, and its appearance in the expired air a few minutes after its administration by the mouth, shows how quickly it reaches the scene of action. I usually administer it in five-minim capsules (sealed) every four to six hours. The use of the terebinthinates in hemorrhage was vaunted by John Hunter, he claiming that it was the only true styptic.

SOCIETY PROCEEDINGS.

THE NORTHWESTERN MEDICAL AND SURGICAL SOCIETY OF NEW YORK.

Stated Meeting, April 22, 1896.

The President, HENRY LING TAYLOR, M.D., was in the chair.

J. H. FRUITNIGHT, M.D., read a paper on

THE IMPORTANCE OF EARLY TREATMENT IN INFLAMMATION OF THE MIDDLE EAR.

(See page 289.)

DISCUSSION.

DR. E. S. PECK said that he had, during the past winter, seen more cases of the kind considered in the paper than ever before. A simple catarrhal otitis is easily handled; but when it becomes purulent, and is otitis of the tympanum attic, or roof of the middle ear, it is in a region which calls for special skill. He had seen the drumhead burst in thirty-six hours in a child who had a simple otitis, with very little pain and no temperature whatever. It is just here that a puncture of the drumhead is of great value. The puncture is easily made in the lower anterior quadrant of the drumhead, where it is least sensitive. The cavity of the middle ear, in a child, will contain perhaps not more than one or two drops, and in an adult not more than three or four. It is a simple matter to puncture the drumhead. The wound made by the knife will very readily heal. The tympanum attic is so thin that, in a young child, where the bone is not formed, it is easy to get basilar meningitis.

A life insurance company had recently asked him about the mortality from chronic otorrhea. From the best statistics he was able to get, there was one death in eight hundred cases of otorrhea over the age of twelve. When a chronic otorrhea has been purulent, and is accompanied with a green discharge, meaning the death of the bone, or a bloody discharge, the condition renders the patient a poor insurance risk; but if it is a manageable case of otorrhea, the man can be put on a better basis. In regard to the treatment, he used twenty or twenty-four grains of boracic acid to the ounce. He firmly believed in leeches, if they were properly used. The abstraction of two ounces of blood from the mastoid does a good deal for the relief of the congestion of the vessels of the middle ear. As to poultices, he preferred dry bran or calomel. He had used hot water several times a day for weeks in succession, but to control pain it is objectionable.

DR. S. BARUCH said he hoped Dr. Fruitnight would enlighten the members upon the early diagnosis of these cases. He had made it a practice in cases of measles

and scarlet fever to pull the baby's ears and to press around the mastoid process to ascertain if there was any tenderness there, and in that way had frequently discovered otitis, even before any symptoms were pronounced. He had not found powder so very objectionable in chronic cases.

DR. T. H. BURCHARD recalled a case of suppurative cellulitis just back of the external ear, in the space between the external ear and the mastoid process. A small abscess formed, and the pus had burrowed down into the tissue of the neck. As it did not yield to the ordinary methods of treatment, the consultant, thinking it was suppuration in the middle ear, proceeded to incise that, without giving the slightest relief. Dr. Noyes was called in, and an incision was made between the mastoid process and the external ear, evacuating half an ounce of pus, with absolute relief to the patient. He asked Dr. Peck whether a diagnosis of these cases in which the suppurative inflammation was outside the ear, but in the vicinity thereof, was not apt to be difficult.

DR. PECK replied that such cases were uncommon. It is not difficult to tell whether the trouble is internal or external. If it is external it goes away quickly—in from three to five days—if internal it is a matter of months.

DR. J. BLAKE WHITE considered powders harmful and dangerous. He had also known cases where middle-ear disease was caused by solutions forcibly drawn into the head for catarrhal affections within the nasal tract.

DR. S. H. DESSAU said he would not use powders to treat cases of acute otitis media, but had used them for the last fifteen years in the treatment of otorrhea, in children and adults. Dr. Burnett of Philadelphia had recently popularized the use of powders in the treatment of otorrhea, using boracic acid which has been saturated with a tincture of calendula or marigold. He uses it in the treatment of otitis media after the drum membrane has been incised or is ruptured.

DR. JOSEPH COLLINS said that students should be taught to remember that four conditions are especially likely to follow disease of the middle ear—leptomeningitis, sinus thrombosis, brain abscess, and disease of the mastoid as an entity. These conditions occur after measles, scarlet fever, and such troubles because of the anatomical conditions existing between the pharynx, the ear, and the Eustachian tube. The infrequency of death from otitis media purulenta is recognized, but an entirely different statement must be made as to the outcome of the sequelæ, such as brain abscess, and the other conditions mentioned. A sero-purulent discharge from the ear, particularly in children, is quite as dangerous as a decidedly purulent one. In children the portions of the temporal bone are not united. The facility with which pathological products can be transported into the surrounding tis sue is marvelous. If you have an ordinary serous discharge, with no microörganisms in it, the slightest change by which pathological microörganisms may go up into the middle ear, may make of that a dangerous condition. Therefore, no matter what the discharge is, or how slight, the necessity for treatment is urgent.

DR. WOODS HUTCHINSON (Professor of Comparative Pathology in the University of Buffalo) said that the disease is almost unknown in any of the graminivora, and almost unheard of among any of the domestic animals, other than the dog or pig. In the carnivora, particularly the dog, the mastoid is well developed, and mastoid disease and inflammation of the middle ear are quite frequent. The middle ear is a remnant of the gill-slit, the Eustachian tube and the outer ear forming the outer part. The disease has a tendency first to escape to the Eustachian tube, failing that, to prefer the dermoid and escape through the gill-slit, and that failing, it may force its way back into the respiratory passage and into the mastoid, and even there its pathway of least resistance is outward, toward the surface. The pus in the middle ear has to burrow its way in the direction of greatest resistance before it can make these dangerous attacks.

DR. BIESER said that a knowledge of the dangerous sequelæ which may follow emphasize the importance of the early recognition of inflammation of the middle ear. When the almost tissue-like thinness of the roof of the tympanum is considered, it is not surprising that occasionally abscess of the brain, or meningitis, or thrombosis of the venous sinus, or mastoid disease follows. He lately had a case in which a child had been suffering from chronic otorrhea. The physician told the mother that it came from the teeth and was all right, and would take care of itself. It did take care of itself. The discharge suddenly ceased, and when he saw the child it was a full-fledged case of meningitis. May not an explanation of external cellular otitis lie in the formation of a fissure which leads from the external auditory canal?

DR. SPENCE said that he did not believe that the general practitioner is alone to blame for some of these ills following middle otitis. Only two months ago he had a case of abscess of the brain, where the woman had had an otitis and consulted a specialist, who told her to keep her ear clean, and that was enough.

DR. BARUCH, JR., said that he had seen fifteen cases of acute mastoid disease operated on, and each one of them, of course, had been preceded by a long, chronic otitis media. Five of them died from abscess of the brain, having come in too late to be operated upon.

DR. FRUITNIGHT said that the cases reported still more emphasized the importance of early treatment. Most of his cases had been patients under sixteen years of age. As to diagnosis, it has been his practice in cases of infectious diseases, or even of catarrhal or mucous symptoms, to discover any trouble by pressing the mastoid process, and under the left lobe of the ear, to see whether the child winces; and also by ocular inspection, to see whether there is any swelling in the canal. He thought that the physician should insist upon treatment whether he has been called in for that particular thing or not.

PRESENTATION OF SPECIMENS.

DR. WHITE exhibited a specimen and reported a case of appendicitis in a boy seventeen years old, who complained of severe headache, weakness, and lassitude. On the 7th of April he came to the speaker with a high fever, and complained of considerable pain in the right iliac region. On the 11th his temperature was 105½° and pulse

120. He complained of nausea and vomiting. He had several chills, and all the symptoms pointed to appendicitis. The operation showed a catarrhal appendicitis, with no suppuration at all.

DR. GROWER presented a specimen and reported the case of a young man twenty-four years of age, who came into the office of Dr. Millbank, saying that he had heart trouble. On examination, there was found to be a distinct dilatation, enlarged heart, and an impulse at the fifth or sixth intercostal space on the right side. A hypodermic of strychnin was given, and the patient went home; about two hours after he died. Upon autopsy, an aneurism about the size of a large walnut, which had ruptured into the right pleural cavity, was found. There was an enlarged heart. The interesting point is the existence of a condition of this sort in a young man twenty-four years of age, with no history of syphilis. Most of these aneurisms that occur at so early a period are due to syphilis. Fraenkel has reported nineteen cases, in which nine had a distinct history of syphilis.

DR. GROWER also presented a specimen showing tuberculous ulcerations in the intestine of a child twelve years of age.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, June 10, 1896.

WM. M. WELCH, M.D., and the second vice-president, THOS. J. MAYS, M.D., were in the chair.

B. MEADE BOLTON, M. D., read a paper entitled

THE EXAMINATION OF CULTURES FROM CASES OF SUSPECTED DIPHTHERIA.

He stated that from May 30, 1895, until January 1, 1896, there were examined by the Bacteriological Division of the Philadelphia Board of Health, 1421 primary cultures and 1942 secondary cultures, a total of 3363 examinations. Of the first, 1207 were made from the throats of persons presenting clinical evidence of diphtheria, and 214 from the throats of healthy persons, who had been exposed to infection. The diagnosis of diphtheria was made by the attending physician in 557 cases; in the remainder the physician either stated that the case was not diphtheria, or left the diagnosis in doubt. In the 557 cases diagnosticated as diphtheria, bacteriologic examination showed the presence of diphtheria bacilli in 507, or 90.2 per cent. In 148 cases the physician stated that the disease was not diphtheria. The Klebs-Loeffler bacillus was found in 40 of these, or 27.1 per cent. Cultures taken from the throats of 214 persons exposed to diphtheria, but presenting no clinical symptoms of that disease, showed the presence of Klebs-Loeffler bacilli in 89, or 41.5 per cent.; 95, or 44.3 per cent., did not show the bacillus; and in the remainder the result of the examination was unsatisfactory. In 50 of these cases it was possible to determine that the bacillus persisted, on the average, for 13.3 days. In 460 cases presenting clinical symptoms, the length of time that the bacilli were present, dating from the appearance of the first symptom to the disappearance of the bacilli, varied from 7 to 96 days, the average being 28.3 days.

DR. A. A. ESHNER said that it must be a matter for gratification that there should be so close an accord between the clinical and the bacteriologic diagnosis. The diagnosis of diphtheria is attended with certain obvious difficulties, inasmuch as there are a number of affections characterized by involvment of the nose and throat—tonsils, pharynx, larynx—presenting clinical manifestations closely simulating those of diphtheria locally, but differing in virulence and lacking the profound constitutional intoxication. It is likely that many of these affections are infectious, that is transmissible, but differ from diphtheria etiologically. They may be designated diphtheroid, as resembling diphtheria but not dependent on the Klebs-Loeffler bacillus. It is to be borne in mind that the absence of the bacillus is not necessarily evidence that the disease is not diphtheria; the microörganisms may have been present and have disappeared, perhaps appearing in some secondary lesion. Besides, failure to find the organisms is not conclusive evidence of its absence. On the other hand, the bacillus may be present and the symptoms be so mild as to obscure the recognition of the disease. It is exceedingly important to appreciate the length of time —sometimes weeks—that the diphtheria bacillus may remain in the throat or nose and still retain its virulence. So-called pseudo-diphtheria bacilli are probably diphtheria bacilli that have lost some of their pathogenic activity.

DR. BOLTON added that investigation had shown that in the various anginæ but two microörganisms of etiologic significance are always found—the diphtheria bacillus and the streptococcus. According to this view the statistics cited show that ninety per cent. of cases presenting clinical symptoms of diphtheria are due to the diphtheria bacillus, and ten per cent. to the streptococcus. It has been pretty well proven that so-called pseudo-diphtheria bacilli are really attenuated diphtheria bacilli.

EDWARD JACKSON, M.D., read a paper entitled

THE PROFESSION, THE OPTICIANS, AND THE PUBLIC.

He pointed out that the use of correcting glasses is still extending, even where it is now most common; and their more accurate adjustment to the needs of the wearer is likely to enlarge their use still farther. The employment of the eyes for the seeing of minute objects at short distances becomes more general and more constant; and the need for glasses will continue and extend until there occurs some important change in the direction of our social development. Who shall measure the eye for glasses? is then a question of some importance. No doubt it will ultimately be done by those who can do it best and do it cheapest, and only long experience will demonstrate who these will be. In Dr. Jackson's opinion it will be done by a class of practitioners familiar with the general principles of medicine and surgery, and experts as to the diseases of the eye, and specially trained in the methods of measuring refraction and conditions of ocular muscular balance. In addition to the special skill required in the correction of optical defects, another reason why this work should be done by a special class of professional men is, that it requires time, thoroughness and exactness. The benefit derived from a pair of glasses is not proportionate to their approach to accuracy of correction; for often no

benefit whatever will be experienced until the approach to accuracy is really very close. Thus it is that the best service in this matter is the only kind of tolerable service; and if it is rendered by the refracting optician rather than by a medical man, the former must make an adequate charge for his time, or else retire from the business. The proper relation of the optician to the prescriber of glasses, and to the public, is closely similar to that of the apothecary, and both sets of relations are liable to certain abuses, such as bribes in the form of percentages for patronage. The remedy consists in that portion of the medical profession doing the special work giving better and cheaper service, and putting itself in communication with those who need such service. One reason why people patronize opticians is to be found in the fact that some doctors do not give the necessary time and attention to the subject of refraction.

DR. WM. THOMSON said that his experience justified what had been said in regard to the need of accuracy and care, and also, that no man could do excellent refraction work unless he had the temperament and a certain kind of fitness for it. The ophthalmologist cannot consider himself a mere specialist, but must keep well equipped in all that pertains to general medicine.

DR. L. J. LAUTENBACH contended that the remuneration of the oculist should be measured by the amount of time required in the management of the individual case.

DR. T. B. SCHNEIDEMAN pointed out that the correction of refractive errors implies also an inquiry into the condition of the fundus, the optic nerve, the retina, the choroid, the media, etc.

E. LAPLACE, M.D., read a paper on

THE SURGICAL TREATMENT OF INSANITY.

He pointed out that while surgical intervention must not be resorted to in every case of insanity, certain cases are dependent upon removable causes. In illustration he reported four cases in which recovery followed operation. The first occurred in a man, thirty-four years old, who, following a blow upon the head with a brick, suffered from severe headache, and subsequently presented symptoms of insanity. Symptoms suggestive of syphilis also were present. Upon removal of a button of bone from the site of previous injury the dura was found adherent to the bone. The opening was enlarged and the adhesions freed. The patient was also placed on antisyphilitic treatment, and at once improved and continued thereafter in good health. The second case occurred in a woman, fifty-four years old, who, following a blow upon the head with a fist, became violently insane. On trephining at the sight of injury the bone was found greatly thickened, and four ounces of serosanguinolent fluid escaped. The dura was greatly congested. Within a week reason was entirely restored, in two weeks more the woman was dismissed, and six months after the operation was absolutely well. The third case was in a man, twenty-six years old, suffering from melancholia. A strip of bone, one-quarter inch wide, was removed from the left temporal region corresponding to the coronal suture. The last case occurred in a laborer, forty-five years old, who suffered from delusions of persecution, together with severe headache. A portion of skull was removed from the site of greatest pain and the adherent dura freed. In a short while both headache and mental symptoms disappeared. The following conclusions were submitted: (1) Traumatic insanity is dependent upon an appreciable pathologic condition incident to the traumatism and interfering materially with intellectual function. (2) Idiopathic insanity is dependent upon an, as yet, inappreciable alteration of the brain-substance interfering with intellectual function. (3) The relief of pressure by trephining and extensive craniectomy is a harmless procedure. It is a most valuable adjuvant to promote, with the aid of suitable medication, the absorption of deep exudates, and the drainage of fluids from the cranial cavity, which would otherwise be retained and act as irritants.

DR. A. J. DOWNES related the case of a young woman, presenting symptoms of melancholia, who had a scar upon the head corresponding to the site of a previous injury. A trephine opening in this situation disclosed evidences of an old blood-clot, which were removed so far as possible. She recovered from her aberration and in a subsequent attack of typhoid fever was entirely free from delirium.

DR. CHALMERS DA COSTA related that at a time when he was a resident physician in a hospital for the insane, he was impressed with the suddenness with which acute insanities are at times capable of disappearing. He referred to a number of cases in which mental symptoms disappeared following traumatisms and operations upon remote parts of the body. He pointed out that some of the lesions found are not causative of, but secondary to, the insanity. Trephining is justified in cases of insanity only when there is a distinct history of head-injury, or evidence thereof, with persistent localized headache.

DR. J. M. BARTON related a case of insanity in which the mental symptoms disappeared after the removal of a portion of diseased tibia.

J. P. CROZER GRIFFITH reported

A CASE OF VARICELLA GANGRENOSA, DIPHTHERIA, RUBEOLA, AND VARICELLA, OCCURRING AT THE SAME TIME.

The patient was a child, twenty-two months old, whose father was just convalescing from an attack of pneumonia, and looked tuberculous. For five days there had been painful cough, with fever, and rapid and labored respiration, and physical examination disclosed evidences of croupous pneumonia. For several days the symptoms progressed and indications of meningitis made their appearance. The attack had been a severe one and had threatened to be fatal. Resolution, however, finally ensued, and the child entered upon convalescence. After the lapse of more than a week follicular tonsillitis developed, and, upon bacterioscopic examination, proved to be diphtheritic. A few days later the rash of measles appeared, and after a few days more that of varicella. Both of the latter diseases were prevalent in the hospital at the time. The vesicles present underwent enlargement to the size of bullæ, which burst, leaving erythematous areas varying in size from a split pea to a quarter of a dollar. In these ulceration took place, with the discharge of ichor-

ous pus, and over the ulcers crusts formed. At first the trunk and arms were principally affected, but later the head and the legs were also involved. Amid symptoms of heart failure death took place apparently from bronchopneumonia. The most significant feature of the *post-mortem* examination was the presence of diphtheritic membrane in the trachea, with none in the larynx.

DR. F. WOODBURY asked if there were any possible connection between the cutaneous eruption and any drug that had been administered. He referred to a case in a child, in which a vesicular or bullous eruption repeatedly followed the administration of small doses of potassium iodid.

DR. J. A. CANTRELL expressed regret that the name varicella gangrenosa had not been dropped, as a similar cutaneous exanthem may attend other conditions.

DR. W. M. WELCH adverted to the rarity of varicella gangrenosa, and spoke of its occurrence especially in children broken down in health.

DR. W. B. ATKINSON referred to an epidemic which, as a representative of the State Board of Health, he had diagnosticated as one of variola, while the local physicians insisted that the disorder was varicella gangrenosa.

DR. J. F. SCHAMBERG suggested that so-called varicella gangrenosa might be merely the dermic manifestation of a systemic intoxication, such as may appear in connection with any infectious disease.

REVIEWS.

DEFORMITIES. A treatise on Orthopedic Surgery intended for practitioners and advanced students. By A. H. TUBBY, M.S. Lond., F.R.C.S. Eng., etc., etc., illustrated with 15 plates and 302 figures, of which 200 are original, and with notes of 100 cases. Pp. 598. Publishers: The Macmillan Co., 66 Fifth avenue, New York.

IN his preface the author states that orthopedic practice in England does not include all phases of disease of the bones and joints, "on what grounds it is difficult to understand," and, as the title indicates, the scope of the work is limited to actual deformity. The omission of tuberculous diseases of the joints from consideration must impair its value as a text-book in this country, where the prevention of deformity has become of such importance in orthopedic work. Tuberculous disease of the spine is considered at length; preliminary recumbency is the routine practice, while jackets of plaster or felt, fulfil all needful requirements of ambulatory treatment. A Taylor brace of a pattern of thirty years ago is figured, and Erickson is quoted as saying that, while it is of value in advanced deformity, yet its leverage power is so great that it may be a source of inconvenience or danger in early cases; the writer is evidently not familiar with its use. Good results from the expectant treatment of abscesses are unusual, although this may receive a trial in favorable cases; aspiration, simple or combined with injections of anti-tuberculous remedies, is not advised. Psoas and lumbar abscesses should be treated as a rule by the radical methods of Treeves and Barker.

Curvatures of the spine receive full consideration; the treatment recommended is constitutional, postural, and by exercise. Braces are adviced in early cases accompanied by much muscular weakness, and in a stage of marked deformity when pain is a symptom. With treatment of forcible correction the author has had no experience.

The various contractions and bodily deformities, some of which are not often mentioned in similar works, are ably considered. The subject of clubfoot occupies one-quarter of the entire volume.

The writer is in favor of gradual correction of deformity by tenotomy and braces, even in advanced cases, but other methods are fully described.

Although the absence of the confusing variety of the illustrations of braces that often fill the pages of similar works, is not to be regretted, yet if the methods of manufacture and application of those braces used and recommended by the writer had been more clearly described, the practical value of the book to the practitioner unfamiliar with the details of orthopedic treatment, might have been increased.

The book is well written; the principles of treatment are well presented; it shows wide reading on the part of author, and the numerous quotations from American sources give it an air of familiarity unusual in an English book.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 24, 1896, TO AUGUST 17, 1896.

So much of S. O. 69 A. Go. March 23, 1896, as directs First Lieutenant Benjamin Brooke, Assistant Surgeon, to report to the President of the Examining Board, appointed to meet at San Francisco, Cal., April 14, 1896, for examination by the Board, is revoked.

First Lieutenant Henry A. Shaw, Assistant Surgeon, will proceed to Fort Brady, Mich., without delay, and report for temporary duty at that post.

Lieutenant Colonel Alfred A. Woodhull, Deputy Surgeon General, and Major Charles Smart, Surgeon, are detailed to represent the Medical Department of the Army at the twenty-fourth annual meeting of the American Public Health Association, to be held at Buffalo, N. Y., September 15, 1896.

A board of medical officers to consist of Colonel Dallas Bache, Assistant Surgeon General, Lieut.-Colonel William H. Forwood, Deputy Surgeon General, Lieut.-Colonel David L. Huntington, Deputy Surgeon General, Major Walter Reed, Surgeon, Captain Charles M. Gandy, Assistant Surgeon, is constituted to meet at the Army Medical Museum Building on Wednesday, September 23, 1896, at 10 o'clock A.M., for examination of candidates for admission to the Medical Corps of the Army.

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 29, 1896.

August 24th.—Medical Director DAVID KINDLEBERGER placed on the retired list September 2d.

Assistant Surgeon H. LA MOTTE ordered to the naval hospital at Norfolk.

Surgeon C. BIDDLE detached from the "Monongahela" and placed on waiting orders.

August 26th.—Medical Inspector J. C. WISE, Surgeons J. C. BYRNES and C. BIDDLE, ordered as a board to convene at Annapolis, September 3d, to examine candidates for admission to the Naval Academy.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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ORIGINAL ARTICLES.

SPEECH DEFECT AS LOCALIZING SYMPTOMS, FROM A STUDY OF SIX CASES OF APHASIA.

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THE various defects in speech caused by lesions of the brain constitute an intensely interesting subject for study, both from the standpoint of the psycho-physiologist and from that of the practical physician, especially the neurologist.

In this paper I shall endeavor to deal with the importance of some speech-defects as localizing symptoms.

In all of the six cases of aphasia that have been reported by me in this journal[1] in connection with the surgeons, Drs. Rogers and Parkhill, who operated upon the patients, the defects in speech were the principal symptoms, and in three of them they were practically the only localizing symptoms. In these three cases, guided alone by the character of the disturbance of speech, I was able to recommend surgical procedures which proved successful in averting fatal terminations.[2] In one[3] of the other cases of the series the symptoms of speech-defect were the only ones present for a time, and were sufficiently marked from the first to establish a diagnosis of organic disease of the brain. At the time of the operation on this case for the removal of the growth from the brain, these symptoms were relied upon to determine the extent and the exact location of the tumor. In the remaining two cases[4] of the series the speech-defects constituted the troubles for which the operations were performed.

The last three cases in the series published presented defects on the motor or emissive side of the speech mechanism. The first[5] of these three is the most interesting on account of the distinctness of the symptoms, the care with which they were observed, and the limited character of the lesion found at the time of the first operation. A detailed description of all the symptoms will be found by referring to the number of this journal in which the case has been published. Briefly stated they were, a loss of the power to spell or to arrange the letters in a word; loss of the power to write intelligibly, because the letters were jumbled together in an irregular manner, but the letters of the alphabet were formed perfectly. In studying his spelling from day to day, it was observed that while there was a certain similarity in the manner in which he arranged the letters in the words he spelled the same word differently from time to time, thus showing an uncertainty in his own mind in regard to how a word should be spelled.

Bastian[1] gives the copy of a letter written him by one of Sir Wm. Jenner's patients while he (Bastian) was a resident physician in University College Hospital in 1869. The recorder states that the handwriting was very good, and that the letter, which is a long one, contained only two trifling erasures. While there are several mistakes in spelling, the principal errors consist in the transposition and omission of words. Unfortunately this case is not given in sufficient detail to enable one to determine whether the defect in writing was due to a lesion in the receptive (sensory) or emissive (motor) side of the speech mechanism.

Kussmaul[2] quotes several cases from a paper written by Bastian. One of these was observed by Hughlings Jackson. In it, the misspelling was the most glaring speech-defect. The patient in attempting to write her name, wrote "Sunnil, Siclaa, Satrena," and for her address, she wrote the following: "Sunesr nut to mer tinn-lain." In another case observed by Bastian, the patient tried to write "Royal naval medical office belonging to the Admirality," wrote "Roydnendd navendendd oforendendd Belondendd." The patient observed by Ferber, an account of whose case is quoted by Kussmaul in this connection, wrote "schrüssen" for "grüssen," "schreigen" for "schreiben," "butter" for "mutter," "omdern" for "modern," and in her own name put a "g" in place of "ch."

In none of the above-quoted cases was the

[1] MEDICAL NEWS, June 6 and 20, July 11, August 1 and 15, September 5, 1896.
[2] Case 1, 2, and 4, *Ibid.*, June 6 and 20, August 1, 1896.
[3] *Ibid.*, July 11, 1896.
[4] *Ibid.*, August 15, September 5, 1896.
[5] *Ibid.*, August 1, 1896.

[1] Bastian, "Paralysis from Brain Disease," pp. 189 and 190.
[2] "Cyclopedia of the Practice of Medicine;" Ziemssen, vol. xiv, pp. 789 and 790.

pathologic lesion determined by an autopsy or surgical operation, and Kussmaul fails to quote the clinical records of the cases to a sufficient extent to enable one to determine the probable seat of the lesion. The spelling, however, in most of the cases is similar to that found in the fourth case of this series. This case, so far as I know, is the first one placed on record in which a lesion limited to the foot of the second frontal convolution has been found, either at the autopsy or by a surgical operation for the relief of the brain symptoms, in which the speech-defects have been observed and studied. The symptoms were carefully observed, and the primary defect in speech seemed to be an inability to arrange the letters in words in the order in which he had learned to place them. The man was intelligent, fairly well educated, and for years had held a responsible position that required him to be accurate in his spelling and writing. The defect in spelling led to his writing in an unintelligible manner. Besides the defect in spelling, there was an inability to arrange the words in a sentence according to grammatical usage, syntactic disturbances in speech or akataphasia.[1] Syntactic defects in speech are found most typically in some cases of sensory aphasia. In the second case published in this series, the power to spell was perfect, but akataphasia was pronounced.[2] (One reason for concluding that the primary defect in speech, in the third case reported,[3] was an inability to spell rather than an inability to write, was the patient's power to write readily and correctly on my spelling out the words for him.) I have a case under observation at present, in connection with Drs. Hopkins and Mager, in which the inability to spell is even more marked than in the case reported in this series. Other symptoms in the case just referred to, point to a lesion in the left frontal lobe, and an operation for the relief of the patient is contemplated as soon as the consent of the relatives is obtained.[4]

Loss of the power to spell correctly undoubtedly occurs in persons who are suffering from sensory aphasia, but these cases are easily distinguished from the cases of aphasia in which no visual or auditory disturbance of speech is found. It is probable that most cases of the loss of the power to spell due to a lesion in the foot of the second convolution will be associated with some impairment of the mind, the degree depending upon the character and extent of the lesion. Further observations are needed before we can determine whether those cases termed dyslogical paraphasia[1] can be distinguished from those forms of aphasia in which the defect in spelling is apparently the primary and principal symptom.[2]

If any conclusion is justified in the observation of one case, it would be that a lesion in the foot of the second frontal convolution on the left side in right-handed persons and probably on the right side in left-handed individuals will give rise to a defect in speech in which the principal symptom will be the loss of the power to spell.[3] It should be borne in mind that a lesion, such as a tumor, abscess, cyst, and probably thrombotic softening occurring in the foot of the second frontal convolution will interfere to some extent with articulation, the mentality of the patient, and in many cases with the function of Broca's convolution. It is probable that the syntactic disturbances in speech depend upon the impaired mental condition of the patient. "Unlike words, sentences are not stored up in memory ready for use."[4]

Does a center for writing exist? According to Bastian and others, cases of agraphia have been observed in which the patient was unable to make more than meaningless strokes. These patients have been unable to read or spell correctly. We can write with a pen held with the teeth, hand, or foot. It is very improbable that the same center in the cerebral cortex would serve to guide these various widely separated groups of muscles in writing. On the other hand, no matter what groups of muscles we employ in the formation of letters, the arrangement of the letters in a given word is always the same. It seems to me more probable that the memory for the arrangement of letters in words is stored up in the cerebral cortex. This process is learned by tedious and repeated repetition. We should naturally expect to find the cortical center in which is registered the memory pictures for the arrangement of letters in a word, to be located near the center which governs the muscles usually employed in

[1] Steinthal, "Cyclopedia of the Practice of Medicine," Ziemssen, vol. xiv, pp. 791 to 798.
[2] The Medical News, June 20, 1896.
[3] *Ibid.*, August 1, 1896.
[5] Kussmaul.

[1] The patient was operated upon by Dr. Mager, the left second frontal convolution was found diseased, but the lesion was so diffuse that symptoms of aphasia lost much of their apparent localizing value.
[2] In these cases, if the loss of the power to write is due to the loss of the power to spell, is the word agraphia the proper term? It has occurred to me that the word anorthographia might be employed instead. Professor Maurice G. Dunham, professor of Greek in the University of Colorado, for some very good reasons seems to prefer the term scoliographia instead of anorthographia. The principal objection which he makes to the latter term is the use of the "an" to denote negative. "An" is in common use before arthria to denote the negative.
[3] It is possible that the primary defect is in the inability to pronounce.
[4] Kussmaul.

writing. It will be interesting to observe whether a lesion in the second frontal convolution on the right side of the brain in right-handed persons is attended with any loss of the power in spelling. So far as I can see at present, it is impossible to investigate the orthographic center in a very illiterate person.

Dr. Charles K. Mills has recorded a case of defective speech utterance from orolingual paralysis.[1] In his case, the lesion involved the lower portions of both central convolutions on the left side, the foot of the left frontal escaping almost entirely. Articulation was imperfect, but the patient could talk. In the fifth case[2] reported in this series, there was very decided weakness, in fact, almost complete paralysis, of the orolingual muscles of the right side, and an inability to utter words, except the simplest ones, with sufficient distinctness to be understood. It was impossible for a listener to understand what he read. He could utter monosyllables slowly and with an explosive sound of the lips, so as to be understood after two or three ineffectual attempts. Unfortunately his right hand was at first nearly paralyzed, and after he regained strength in this hand, it was used so awkwardly that his writing was indistinct. The writing with the left hand was no better than with the right. None of the letters were well formed, but there was no transposing or omission of words or letters. There was no evidence that Broca's convolution was affected. His attempt at writing showed no misspelling or agraphia, but rather a disgraphia. The lesion at the operation was limited to the lower portions of the central convolutions (ascending frontal and parietal). This case, as well as the one reported by Mills, points very conclusively to the existence of an orolingual center concerned in speech. It is probable that this center is bilateral, but so far as I am aware, no cases of lesion in the orolingual center on the right side in right-handed persons have been studied and reported.[3] Neither in the case reported by Mills, nor in the one reported by me, was the inability to utter words complete, as we would expect to find if the center is unilateral.

From a study of the symptoms found in these two cases of orolingual paralysis, and from the flattering results of the operation in the case reported by me, it seems to me that we are justified in recognizing an orolingual cortical center which is concerned in speech, and that under certain conditions, operative procedures, when this center is diseased, may be followed by partial restoration of the power of articulation.[1] No further comments on the last case of the series are needed beyond what are made in connection with the report of the case.[2]

Turning now to the cases of sensory aphasia reported in this series,[3] we find in the first[4] that the lesion was limited to the angular gyrus, its subcortical region and the anterior portion of the occipital lobe, that there was a condition of apraxia for all objects except those that were very familiar, and that this existed for all the sense memories. The patient manifested a state of verbal amnesia for all objects save those with which he had been most familiar. There was no auditory disturbance of speech. He could not recognize letters, figures, and colors seen. He could not understand printed and written words seen, nor read inaudibly or aloud. He could not recall objects, the names of which were seen. The power to write voluntarily, at dictation, to copy and to write the names of objects presented to him by the various senses, was at first almost completely lost. He was unable to read. He failed partially at first to write his own name or to read it after it had been written by another. He usually was unable to recognize a letter by tracing it with his finger or pencil, the movements being guided by another; neither could he call up mentally the appearance of an object, figure, letter, or word. He made a partial failure in counting numbers or money. He could not recognize a single card, although he had formerly been very fond of games.

In the third case[5] the lesion was extensive, involving the Rolandic parietal and angular regions and the centrum ovale of these. Apraxia was pronounced; verbal amnesia was present; he copied poorly, but mechanically; recognized a tune, and could sing if some one led; could recognize only a few spoken names; could name any word that was spelled aloud; was unable to read, or to write voluntarily, and could not read what he copied; did not recognize colors, but did objects; could not count in numbers or calculate, but could count money. In the second case[6] the lesion was limited to the posterior halves of the first and second temporal convolutions and the centrum ovale beneath this portion of the

[1] A "Text-book on Nervous Diseases," by American authors, pp. 409 and 410.
[2] THE MEDICAL NEWS, August 1, 1896.
[3] Dr. Parkhill has recently referred a patient to me with lesion in the right orolingual center, of thirty-four years' duration. We will report this case, conjointly, soon.

[1] MEDICAL NEWS, August 15, 1896.
[2] *Ibid.*
[3] *Ibid.*, June 6 and 20, and July 11, 1896.
[4] *Ibid.*, June 6, 1896.
[5] *Ibid.*, July 11, 1896.
[6] *Ibid.*, June 20, 1896.

cortex. The patient was mind- and word-deaf; verbal amnesia was present, apparently; there was partial apraxia; he could read, but did not seem to understand; he read aloud so that any one could understand him; he could write voluntarily his name and whisky; did not recognize playing-cards; and copied fairly well, converting printing into script. There was no visual disturbance of speech.

On reviewing the symptoms, we find that all the cases of sensory aphasia presented a condition of apraxia and verbal amnesia, but in none of them were these defects complete. In the two in which the lesion involved the angular region, there were visual disturbances of speech, such as word-blindness and inability to call up mentally the appearance of a word or letter. In the case in which the lesion was limited to the first and second temporal convolutions, there were auditory disturbances of speech, such as mind- and word-deafness at first, later word-deafness and inability to call up mentally the sound of a word or letter spoken aloud. In none of the cases was there an inability intelligently to see objects (mind-blindness). In only one was there hemianopsia, and this occurred in the case in which the lesion penetrated the centrum ovale deeply beneath the angular gyrus. In the case of extensive lesion in the angular region, there was loss of power to read or write, while in the other, in which the lesion was less extensive, but involving the angular gyrus, there was at first an almost complete loss of power to read and write. In the case in which the lesion affected the temporal convolutions, the patient could both read aloud and write, but did not seem able to understand what he had read or written. All the patients could write their names, although it was done imperfectly by those suffering from visual disturbances of speech. None of the three could count in numbers, but one could count money.[1] None could at first play a game of cards. In one, the case with an extensive lesion involving the Rolandic parietal and angular regions, the ability to recognize a word spelled aloud was very good.

We may conclude, from a study of the symptoms presented by these three cases of sensory aphasia, that apraxia and verbal amnesia have no localizing value, except to place the lesion in the sensory or receptive side of the speech mechanism; that inability to count or to play games of cards have no localizing value, as these defects are found in a few cases of motor aphasia; that word-blindness places the lesion in or near the angular gyrus; that word- or mind-deafness is evidence that the lesion is in the posterior portions of the first and second temporal convolutions. In each of these cases the subcortical as well as cortical region concerned in speech was affected.

All the patients suffering from sensory aphasia, with one exception, copied mechanically, transcribing writing into script and printing into printing, giving each letter the amount of shading found in the original, and that all the cases of motor aphasia transcribed printing and writing into script. This seems to be of considerable diagnostic importance in distinguishing the motor from the sensory forms of aphasia.[1]

[1] MEDICAL NEWS, July 11, 1896.

ENTEROPTOSIS.[2]

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ENTEROPTOSIS designates a condition in which the suspensory ligaments of some of the abdominal viscera are relaxed, causing a more or less pronounced descent of these organs.

The disease begins with a prolapse of the intestines, particularly of the right part of the colon transversum, due to a relaxation of the weak ligamentum colico-hepaticum. The colon ascendens and colon transversum, losing their ligamentous suspension, sink down, and so the colon transversum, instead of running straight across the abdominal cavity, runs obliquely from below upward. At the left end, the transverse colon is held in place by the strong ligamentum gastro-colicum. The acute angle produced at this point by the prolapse of the other end of the transverse colon, causes a partial occlusion of the lumen of the gut (enterostenosis). The transverse colon, therefore, remains contracted and empty, and gives the condition described as "corde transverse." Coincident with the descent of the transverse colon, there is a relaxation of the ligaments (mesenteries) of the small intestines, and this produces a dragging down of the stomach, and causes the liver and kidney, through the ligamentum gastro-colicum, to assume a lower position than normal (hepatoptosis and nephroptosis). Thus there may be a prolapse of all the intestines (splanchnoptosis). This enteroptosis causes en-

[1] A little brochure that contains much of deep interest to every student of aphasia has been written by Sigm. Freud, "Zur Auffassung der Aphasien; Eine Stritische Studie," Leipzig und Wien, 1891. So far as I am aware, this little book has not attracted much attention, especially in England and America. The author is at variance with the theories of Wermike and Leichtheim, but the practical results of his conclusions are nearly the same as those of the writers just referred to.

[2] Read before the Fifth District Branch of the N. Y. State Medical Association, May 26, 1896.

terostenosis and increases the specific gravity of the intestines, because they do not contain gas, thus diminishing the abdominal tension. A *circulus vitiosus* is produced which, if not interfered with, grows worse.

The subjective symptoms of this disease are: Weakness and constant feeling of lassitude; difficulty in digestion of fats, farinaceous foods, acids, pure wine, pure milk, with an increase in the digestive troubles about three hours after meals; sleeplessness; usually constipation or irregularity of the bowels.

The objective symptoms, according to Glénard, are: (1) Splashing sound (*clapotement épigastrique*). (2) Pulsation of the abdominal aorta (*battement aortique*). (3) "Corde colique transverse." (4) In the right hypochondriac region, frequently movable kidney.

By the "corde colique transverse," Glénard means that resistance, which is found lying over the aorta from three to five centimeters above the navel, running horizontally from six to ten centimeters on each side of the median line. This gives the impression of a sausage-like body, one centimeter in width, and was supposed by Glénard to be the displaced colon transversum, for pressure on the right iliac region at the beginning of the colon ascendens produced rumbling sounds in the corde transverse.

Glénard distinguishes three different periods of the disease. During the first period (atonie gastrique par entéroptose) the patient eats everything, but experiences slight somnolence or a burning sensation after meals; about 2 o'clock A.M., the sleep is interrupted for a few minutes. Generally there is one evacuation of the bowels in the morning, of somewhat diarrheic nature; there is a gradual loss of strength. In the second period (mésogastrique, gastroptose) the patient avoids fat, farinaceous foods, acids, milk, wine; complains of a sensation of dragging, false hunger, and emptiness about three hours after meals. About 2 o'clock A.M., he remains awake for two or three hours; suffers from constipation, interrupted once in a while by diarrheic evacuations; always feels tired, particularly when arising, and about three o'clock in the afternoon. In the third period (neurasthénique, enterostenose) the patient has lost thirty or forty pounds, and is not sufficiently nourished; he has lived on milk diet, on purées, beef-tea — on most improbable meals; complains of a weighty sensation or cramps in the stomach, and is almost constantly suffering. He does not sleep; the constipation is most obstinate; the daily enemata with difficulty effect an evacuation of fatty scybala, surrounded by mucus or pseudo-membranes from time to time. There is constant complaint of great weakness, so that he hardly leaves the room, and lies on the lounge constantly. He represents the most varied nervous symptoms—cerebral, spinal, sympathetic, both psychical and physical.

As this whole series of symptoms is caused and explained (1) by enteroptosis, (2) enterostenosis, (3) deficient nutrition, the fundamental indications for the successful treatment are pointed out by Glénard in the following way: (1) The intestines have to be raised and maintained in their position. (2) The abdominal tension must be increased. (3) The bowels have to be regulated. (4) The secretions of the digestive tract and of the annexed glands have to be stimulated. (5) The alimentation has to be regulated and the digestion assisted. (6) The organism has to be stimulated. The first two points are accomplished by wearing an abdominal bandage reaching to the navel and exerting a pressure upon the hypogastrium from below upward. This bandage raises the intestines and increases the tension of the abdomen.

To regulate the bowels, Glénard gives his patients, a quarter of an hour before breakfast, any one of the following: Natrium sulphate, 4.0, magnesia sulphate, 3.0, in half a glassful of water, or a teaspoonful or half a glass of Janos; one quarter of a glass of Rubinat; a teaspoonful of Carlsbad salt, or pills consisting of 0.05 extractum rhei. The fourth requirement must be accomplished by massage, electricity, aud lavage of the stomach; and the sixth, by gymnastic exercises.

Glénard first pointed out that the diet should contain plenty of meats, but not of milk, as was formerly customary; frequent meals should be advised, while the quantity of liquids should be greatly reduced.

As has been shown by Ewald, the best sign to recognize enteroptosis, is the demonstration of an existing gastroptosis. This can occasionally be recognized by the splashing sound, which can be produced on the left side of the abdomen over an area extending from the navel, or somewhat above it, down to the symphysis. The inflation of air is another means of detecting the position of the stomach; when the stomach is inflated, the lesser curvature, in cases of gastroptosis, is visible midway between the ensiform process and the navel, or just near the umbilicus.

Gastrodiaphany has been recommended by me as a reliable means of recognizing gastroptosis. It makes the stomach visible as a red zone on the abdomen, between the navel and the symphysis.

To recognize the movable kidney it is only necessary to practise palpation, putting one hand on the back of the patient at the lumbar region, while the other is held flat below the margin of the false ribs, covering the lower outside angle of the abdomen. By having the patient inspire deeply, the kidney, if movable, is felt to slip between both hands; slight pressure with the hand on the lumbar region will facilitate the recognition.

While Israel is of the opinion that on a deep inspiration even a normal kidney may be partly felt by this method of examination, Glénard considers all cases in which the kidney can be detected by palpation as abnormal. He distinguishes four degrees of movable kidney: First degree of nephroptosis: the lower part of the kidney can be palpated during deep inspiration; during expiration, the kidney slips back to its normal place, and it is impossible to prevent its return. Second degree: the greater part of the kidney can be palpated, and it can also be held in its abnormal position, but its superior margin cannot be felt. Third degree: the superior margin of the kidney can be reached on deep inspiration. Fourth degree: the whole kidney is accessible to palpation, even during expiration (the movable or wandering kidney of the older writers). Movable kidney is, according to Glénard, only one of the symptoms of enteroptosis.

It is generally accepted that the corset plays a predominant part in the causation of the downward displacement of the abdominal organs; confinement is also believed to be a great factor. But besides these two points, which refer only to the female sex, there are some other conditions which, likewise, predispose to enteroptosis and are common to both sexes, namely, acute diseases of a grave nature, and protracted ailments accompanied by a considerable loss of flesh.

In January, 1896, I saw 57 male patients with gastric disturbances; among them were 4 with a distinct enteroptosis and right movable kidney (third and fourth degrees); the number of females with the same disturbances amounted to 33, and 13 had distinct enteroptosis with a right movable kidney. April showed similar figures: Number of male patients, 84; enteroptosis with movable kidney, 5; number of females, 59; enteroptosis with movable kidney, 19.

Among the male patients with digestive disorders, the percentage of enteroptosis was 6.2, while in the females with the same kinds of affections, the percentage was 34.8. The great frequency of enteroptosis, which has been stated by Glénard, is fully sustained by the figures just given. Glénard, however, goes too far when he ascribes all digestive disturbances to this faulty position of the abdominal viscera, nor is enteroptosis always the only cause of all the symptoms. According to my own experience, pronounced enteroptosis may exist without any manifestations of morbid phenomena. It is also self-evident that all kinds of gastric affections will occur in cases of enteroptosis as well as elsewhere; for enteroptosis does not afford immunity against digestive disorders. Hence it appears that, aside from the diagnosis of enteroptosis, it is often necessary to recognize the existence of other factors. I must, however, concur with Glénard that in many instances enteroptosis, as such, is liable to produce symptoms, and that these symptoms can be materially improved by the treatment outlined above. The abdominal bandage (which should raise the abdominal viscera) and the restriction of liquids seem to be the most important measures, and should be applied in all cases of this affection.

Meinert[1] examined a large number of young chlorotic girls with regard to the position of the stomach, and found the greater curvature always occupying a very low position (between the navel and symphysis); he concluded that "the gastroptosis" in his cases was the cause of the existing chlorosis. The method which he used to determine the position of the stomach was that of Frerichs; it consists of giving the patient bicarbonate of soda and tartaric acid in two separate portions of water, taken in succession. The carbonic acid gas collecting in the stomach, inflates this organ. The position of the stomach then may be recognized by mere inspection or by percussion. Instead of administering two grams of each of these drugs as is ordinarily done, Meinert gave eight grams. The results this writer obtained do not represent the stomach in its natural state, but in an artificially overdistended condition. Leo[2] and Meltzing,[3] the latter using the gastrodiaphane, refuted Meinert's statement. There is no doubt that Meinert's method of ascertaining the position and size of the stomach is not a very good one, and apt to misrepresent the true condition. Although the occurrence of enteroptosis in chlorosis is quite frequent, Meinert's statement that gastroptosis is a prime factor of chlorosis is not sufficiently proven. Chlorosis is not infrequently met with in

[1] E. Meinert, "Zur Aetologie der Chlorose," Wiesbaden, 1894.
[2] H. Leo, "Ueber Gastroptose und Chlorose," *Deut. med. Woch.*, 1896, No. 12.
[3] Meltzing, "Gastroptose und Chlorose," *Wiener med. Presse*, 1895, No. 30–34.

persons not affected with enteroptosis, nor are all the patients with enteroptosis chlorotic. The corset, upon which a great deal of blame has justly been put for the causation of the descent of the abdominal viscera, and which, according to Meinert, is a great factor in the production of chlorosis, cannot be recognized as a useful and and hygienic garment, and ladies wearing it should, at least, be careful not to lace too tight.

SOME CONSIDERATIONS ON THE TREATMENT OF TYPHOID FEVER.[1]

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IT is, perhaps, the repetition of a twice-told tale to present a consideration of the treatment of typhoid fever, but it is because of the perennial interest and the practical importance of the subject that I have ventured to discuss it.

There is no longer any reasonable doubt that typhoid fever is dependent upon the pathogenic activity of the bacillus described by Eberth in 1880, and that it represents the reaction between the body and this microörganism. There are other bacteria—and notably the colon-bacillus—that more or less closely resemble the typhoid bacillus, but each has its distinguishing traits and characteristics, and each its own pathogenic peculiarities. We can thus safely commit ourselves to the proposition that the typhoid bacillus alone is capable of generating typhoid fever, with the corollary that there can be no typhoid fever without the bacillus. This statement implies at once that typhoid fever cannot originate *de novo*—that every case is derived from some preëxisting case. It is of the utmost importance to recognize this truth, as upon its appreciation depends the application of a rational prophylaxis, as well as any hope that may be entertained of the ultimate extermination of the disease. It may thus be confidently predicated that the exercise of a proper care in the disposal of the excreta in every case of typhoid fever would soon lead to the extinction of this disease.

The most common channel by which typhoid fever is conveyed is water used for drinking and other domestic purposes. As a deduction from this fact it may be fairly maintained that thorough sterilization of all water used for these purposes would lead to an enormous reduction in the prevalence of typhoid fever. The transmission may, however, take place, though far less commonly, in other ways, as through direct infection of those in attendance upon the sick, or through the handling of the excreta, the bedding, and the linen of the patient. It is further not impossible that conveyance may take place through the air by means of dried fecal matter reduced to dust.

From the foregoing considerations, it is clear why the intestinal tract generally bears the burnen of the disease, although it is recognized that other structures of the body suffer at the same time, and, in fact, that the intestinal tract may escape, while other viscera are involved. Typhoid fever is thus, like all of the infectious diseases, primarily a local process, becoming soon, however, general. In this connection, two important pathogenic factors must receive consideration. The first of primary importance is the typhoid infection. At the site of original lodgment in the human body the typhoid bacilli, under favoring conditions, undergo multiplication and give rise to the local lesions of the disease. From this point they are often widely distributed throughout the organism, and in this way they may give rise to specific secondary lesions, such as abscesses and inflammations of bone and serous membranes. The second pathogenic factor to be considered is the typhoid intoxication. As a result of the reaction between the invading microorganisms and the tissues of the body, certain poisons are elaborated that are capable of profound activity, as manifested by the general prostration, the delirium, and the pronounced constitutional manifestations. For the purposes of this communication, we shall omit further reference to the purely secondary infections and complications dependent upon other agencies than the typhoid bacillus.

Having thus formulated an hypothesis as to the mode of development of typhoid fever, the question naturally arises at once, How is the disease brought to an end? To this there two ready answers, both of which may be accepted as at least partly correct: In accordance with existing knowledge of the development of antitoxic substances in the course of infectious processes, it may be conceived that the typhoid infection ultimately results in the production of substances inimical to the life of the typhoid bacillus and antidotal to the typhoid intoxication. On the other hand, it is contended that the disease-process comes to an end because of the exhaustion of the pabulum necessary for the continued existence and activity of the typhoid bacillus. The greater significance may be attached to the first.

With these facts before us, the therapeutic

[1] Read before the Delaware County (Pa.) Medical Society, July 24, 1896.

problem is greatly simplified, although we are, as yet unsupplied with the necessary resources for carrying out the plan of treatment thus logically suggested. The remedy is yet wanting that is capable of destroying *in situ* the microörganisms, of inhibiting their pathogenic activity, or of neutralizing the toxins to which they give rise. The experiments in serumtherapy have thus far not yielded results capable of practical application in the treatment of typhoid fever, although it seems not too much to hope that the not remote future will bring a specific remedy for this disease, as well as for other self-limited diseases, one attack of which confers relative immunity from a subsequent invasion of the same disease.

The first important consideration in the treatment of typhoid fever relates to the prophylaxis. With a knowledge of the means by which the disease is most commonly transmitted, it is obvious that its diffusion will be restricted by measures looking to the provision of an adequate system of drainage and of a pure water-supply, and of the application to the individual case of the principles of isolation and disinfection. The preponderant frequency with which the disease is transmitted by means of water—and contaminated milk especially, is an indication for the avoidance of doubtful sources of supply, and, as added precautions, for reliable filtration and sterilization by boiling. Typhoid fever is not, in the ordinary sense of the word, contagious, *i.e.*, transmissible through mere association or contact, although, as has been stated, conveyance takes place through the intermediation of the excreta. Nevertheless, it is the part of wisdom to place the patient in an apartment by himself and have him visited by only the necessary attendants. The ideal mode of disposing of the excreta—including stools, urine, sputum, and sweat—would be their destruction by fire; but a more feasible method consists in their thorough disinfection by means of milk of lime, mercuric chlorid, carbolic acid, and other substances. Corresponding care should be exercised with regard to the soiled body and the bedclothing and apparel of the patient.

When the disease has developed to the point of clinical recognition, there can be no hope of its abortion. It then continues its evolution and pursues its course to the natural termination, unless interrupted by death. Not a little, however, can be done, to mitigate its severity and avert complications, and perhaps, directly or indirectly, to shorten its duration.

Among the many therapeutic measures that have been employed at different times, it may be said of antiseptic remedies, such as carbolic acid, naphthol, salol, guaiacol, etc., that while useful adjuncts, they are without curative or specific effect, and not too much must be expected from them. In their administration, further, care must be taken not to add to the intoxication of an already serious ailment. A similar statement may be made concerning antithermic or antipyretic remedies. In this connection, it is well to bear in mind that even permanent reduction of temperature does not imply dissipation of the disease and its concomitants, for clinical experience has shown that typhoid fever and other infections may exist without elevation of temperature.

So-called expectant treatment is practically no treatment at all worthy of the name, and symptomatic treatment includes only those measures that the conscientious and competent practitioner is always prepared to employ whenever demanded by the exigency.

I have reserved for final consideration the plan of treatment known as the Brand method, the faithful employment of which has resulted in a most gratifying reduction in the ordinary mortality from typhoid fever. Water has long been employed in the treatment of fever, but its methodic use dates back only to 1774, when it received such application at the hands of Dr Robert Jackson, who used warm baths, followed by cold affusions. A little later (in 1777) Dr. Wright used affusions of cold water in the treatment of himself and a companion suffering from a fever. In 1787 the method was taken up by Currie and others, and it soon became a recognized plan of treatment. To Currie belongs the credit of first laying down rules for the methodic application of cold affusions for therapeutic purposes. He recommended this measure especially at the time of the febrile exacerbation, but conceded its usefulness whenever, in the absence of chilliness, the heat of the surface was above the natural and there was no general or profuse perspiration. The temperature of the water ranged from 40 to 70° F., according to season. From this time water continued to be used in a desultory way in the treatment of febrile disorders; but it is from 1861, following the publication of Brand's monograph on the "Hydrotherapy of Typhoid Fever" that the systematic employment of cold water in the treatment of the febrile state dates. The innovation did not escape objection and antagonism, but during the thirty-five years that have elapsed since its introduction it has steadily gained in favor, until to-day it stands as the best treatment of typhoid fever in particular and of the febrile state

in general. Like the treatment of diphtheria with the antitoxin, conviction was in this instance carried also by the "brute force of figures." The method was not attractive in itself, and its application was not unattended with difficulties, but a reduction in mortality among large numbers of cases in the hands of many different observers from figures as high as thirty per cent. to five per cent. and lower could not be viewed with indifference. The method has thus, by its life-saving influence, forced its way into professional favor; but the results secured will depend upon the fidelity with which the details of the treatment are followed, rather than upon the mere use of cold water. Brand's recommendations are, briefly:

Whenever the temperature taken in the rectum reaches 102.2° F., the patient is immersed for fifteen minutes every three hours, day and night, in water at a temperature of 68° F. This is the rule, but it is not an inflexible one, and must be adapted to the needs of the individual case. The object of the treatment is to effect amelioration of the symptoms and to keep the temperature within safe limits. Thus, in an aggravated case, with profound nervous manifestations and hyperpyrexia, the temperature of the water may be as low as 59° F. and the duration of the bath extended to twenty minutes, or even more. When the temperature does not reach quite 102.2° F., it is often useful to bathe the patient for a few minutes once or twice a day at 68° F. or two or three times a day in a half-bath of tepid water (92.4° F.), using also douches gradually reduced to 68° F. In giving the full cold bath, sufficient water is employed to cover the entire body, with the exception of the head, and the temperature is kept down by the constant addition of cold water or of ice. Throughout the continuance of the bath the exposed parts of the body are vigorously rubbed, and from time to time cold water is poured upon the patient's head. Before the bath the patient is given a stimulant in the form of whisky or brandy, and at its conclusion he may be given some warm liquid food or alcohol, or both. Then, without rubbing or other manipulation, he is placed between dry sheets and lightly covered with a blanket. Usually the patient is able to get into and out of the bath without aid, but if the case be asthenic or ataxic, he may be assisted.

The good effects of the bath are seen not only in the reduction of excessive temperature, but also in a clearing of the intellect, a lessening of the stupor, a disappearance of the muscular twitching, a general tonic influence upon the nerves, and especially upon the heart and lungs, in an improvement of all of the bodily functions, in the promotion of sleep, and, finally, in a reduction of the mortality. As a rule, no medication is required, and the use of alcohol is not necessary, except, perhaps, in those who have been accustomed to it. If constipation be present at the beginning, an initial full dose of calomel (gr. viij) may be administered. In the course of the attack simple enemata may be employed.

The hydriatic treatment of typhoid fever may be employed at any stage of the disease and at any period of life. The best results are naturally secured the earlier in the attack the patient is placed under treatment. In cases coming under observation and submitted to the treatment prior to the fifth day, death may be entirely averted. Children bear the full cold bath well. In patients past sixty, it is best to use the gradually cooled bath, the water being at first about 10° F. lower than the temperature of the body, and being gradually reduced in the course of from twenty to thirty minutes, to 68° F. The only complications that interdict the continuance of the baths are intestinal perforation, peritonitis, and free hemorrhage. Experience shows, however, that complications are, in general, less common in those treated according to the Brand plan than in those treated by any other method.

The Brand method finds its widest field of application in hospital practice, but the difficulties that attend its employment in private practice are not insurmountable. The most serious one, besides firmness and resolution on the part of the clinician, is overcome by the construction of portable tubs, some of which can be conveniently folded up and readily transported.

There are, of course, other modes of employing water in the treatment of fever. Thus, we are all familiar with partial baths, tepid or gradually reduced; with spongings with water of varying temperature and with various admixture; as also with the cold pack and with applications of ice, the passage of a stream of cold water through tubes passing over or around to different parts of the body, etc. Martin Barr of Liverpool employs a continuous bath at a temperature of 90 or 95° F., such as in vogue among dermatologists in the treatment of extensive burns of the body. Fenwick of London employs what he designates an ice-cradle, which consists of iron arches fastened to the bed and placed over the patient, from which are suspended zinc buckets, partially filled with ice. Still others have employed evaporating sprays. None of these expedients, however, even approximates in efficacy the Brand plan in the treatment of the febrile state, by means of which, as has been aptly said, severe cases are converted into mild cases, and the classic picture of typhoid fever is no longer seen.

A NEW AND IMPROVED METHOD OF PERFORMING ALEXANDER'S OPERATION.

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THE more clearly the indications for Alexander's operation are becoming defined the more frequently is it being performed. In the opinion even of those who were at first opposed to it, it is of great value in correcting not only retroversion but also prolapse of the uterus. As long as the uterus can be freely brought forward to the symphysis pubis either by bimanual manipulations, or by the aid of the sound, shortening of the round ligament gives excellent results. It is, of course, unnecessary in temporary or acute cases of retro-

version in which the uterus remains up of itself, or by the aid of an easy-fitting pessary; and it is worse than useless in cases in which there are dense adhesions, unless these latter have first been broken up by the finger introduced through an abdominal or vaginal opening into the peritoneal cavity. There are still, however, many operators of considerable ability in whose hands the operation has proved difficult or even impossible, while in some cases it has been followed by disastrous results. One surgeon, who is afraid of nothing in general surgery, has such a horror of this operation that he has decided never to attempt it again, owing to failure to find the ligaments, even after an elaborate dissection. Another, the pioneer of gynecology and abdominal surgery in Canada, attempted the operation only once but failed to find the ligaments or to sew up the separated pillars of the external inguinal ring, with the result that the woman soon after had two enormous hernias, which she has steadily refused to have sewed up, preferring to exhibit them as a failure of surgery. Many other instances could be mentioned in which operators of the first class dislike the operations, not because they are dissatisfied with the results, but on account of the difficulty and uncertainty of finding the ligaments. The writer in his first few cases had the same experience, having been obliged, in one case at least, to abandon the Alexander operation and perform ventrofixation. It was only after the discovery of the method which will now be described that he has been able to find the ligaments invariably and quickly. After an experience of about forty operations, performed according to this method, he is able to find the ligament and draw it out in from half a minute to a minute and a half. He believes that this method is original, never having seen it described in any of the journals nor witnessed its performance by any operator. It is, however, exceedingly simple and easy, so much so, indeed, that it can almost be performed with the eyes shut, and by the sense of touch alone.

Operation.—The skin is shaved and carefully disinfected in whichever manner the operator prefers. The tip of the left index finger is then pressed firmly down upon the spine of the pubis, when, in many cases, the external inguinal ring can be distinctly felt. An incision directly over this spot is then made, diverging at its outer end about thirty-five or fifty degrees from Poupart's ligament. The incision must go through the skin, superficial and deep fascia, but no farther, and even for fear of severing any of the fibers of the intercolumnar fascia, the last part of the incision should be made with the handle of the scalpel. The pearly, glistening fibers of the external oblique will then be seen, with the intercolumnar fibers running across them, holding the pillars of the ring together. Some fat will appear bulging from between these pillars, and if the finger-tip be pressed upon this fat, the latter will recede into the ring. The secret of success now lies in *not* cutting through this fat down to the spine of the pubis, as Alexander directed, but in keeping it intact, for if this fat be caught up in a Pean's forceps and pulled upon, the round ligament is drawn up. With the tip of the left index finger covering the ring, a pair of closed Pean's forceps is slipped into the canal under the finger and opened, when the only things in the canal, namely, the round ligament and the nerve running with it, are caught by the forceps, and drawn out. All instruments are laid aside, the separation of the ligament from the nerve, and from the fascia which connects the ligament to the canal, being accomplished by the fingers, which are quite strong enough to pick out the ligament, but not sharp enough to cut it. No matter how small the ligament may be at the ring, on drawing it gently out it will be found to be of good size. The ligament is drawn out until the peritoneal covering appears, and this is stripped back with the fingers. The ligament on the opposite side is then found and drawn out in the same way. The ligaments are then anchored in the following manner: While a gentle traction is maintained by an assistant, a fine silk suture is passed through the transparent anterior wall of the inguinal canal, taking in half of the round ligament, and tied. The next stitch takes in Poupart's ligament, half of the round ligament, and then the superior pillar of the ring, and this, when tied, brings the pillars of the ring together as well as attaches the round ligament. If the ring is still too open another stitch may be placed. The wounds in the skin are then brought together by interrupted silkworm-gut sutures. The advantages claimed for this operation are:

1. A one-inch incision in the skin is sufficient.

2. There is no need of dividing the fibers of the intercolumnar fascia, which is the sole support of the external inguinal ring.

3. The round ligament can be quickly found as the natural position of the structures of the ring is not disturbed.

4. The ligaments can invariably be found, although it has been claimed by some that the round ligament is sometimes absent, it is more probable that it is always present, but being split up it be-

comes so weak that it breaks, or, in some cases, some other structure is mistaken for it. There is nothing in the inguinal canal except the round ligament and ilio-inguinal nerve, and if the knife and scissors be laid aside as soon as the deep fascia has been cut through and neither the canal nor the ligament be wounded, then, in grasping whatever is in the canal, we are sure to find the round ligament.

5. By the method above described hernia would be impossible, at least as the result of the operation, for not a fiber is cut that supports abdominal pressure. Even if the woman had a hernia before it would be radically cured by Alexander's operation, performed according to this method. Silk is employed because catgut does not last long enough to give permanent strength to the ring. The one relapse referred to above was due to the employment of silkworm-gut sutures which were only left in two weeks instead of permanently. But in this case there was no hernia.

One cannot but feel sorry to see a good operator baffled by such a small but sometimes difficult operation, but the difficulty is almost entirely due to splitting up the fan-like expansion of the ligament, while following Alexander's directions, which so much reduces it in size and strength that it breaks off when drawn upon. Another source of difficulty comes from what might be called making a false passage by cutting down too freely upon the external oblique, when a little nick is made which may easily be mistaken for the external inguinal ring. A round band of muscle is found in this opening, which is pulled at in vain, for it is a part of the external oblique muscle. When this accident occurs, or, if indeed for any other reason the ligaments cannot be found and drawn out, it is better to leave that side alone for a few minutes and proceed with the opposite side; when, returning to the first side again, the parts will have settled into their normal position, and the real canal will be found.

CLINICAL MEMORANDUM.

REPORT OF A CASE OF ECTOPIC GESTATION ASSOCIATED WITH TUBERCULOSIS OF THE TUBES, PLACENTA, AND FETUS.[1]

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IN so far as I have been able to discover, the case which I present in this report is unique in being the first case of extrauterine pregnancy associated with tuberculosis of the tubes, that has yet been observed. While the field of the etiology of ectopic gestation is thus enlarged by the admission of a new factor, the case becomes more important because of the undoubted proof of the existence of tuberculosis in the placenta and fetus. For this reason its relation to the question of the inheritance of tuberculosis gives the case the greatest scientific interest. This question, still open to discussion, receives here important evidence as to the possibility of the infection of the child from a diseased parent in its intrauterine life.

The patient who forms the subject of this report was from the clinic of Dr. James N. Martin, Professor of Gynecology and Obstetrics in the University of Michigan, and to his kindness and courtesy I am indebted for the history of the case and the results of the operation. The history is briefly as follows:

Mrs. F. C., thirty-eight years of age, had been married for thirteen years. She had had no children and no abortions. Her periods had always been regular until August, 1895. At that time she menstruated in the second week, and then did not have a return until February, 1896. From August to October she felt well, but early in that month she had a sudden attack of sharp and sickening pains low down in her left side. The patient described these pains as darting in all directions, and "feeling as if the navel was being pulled backward." There was a decided tendency to collapse, but the symptoms soon subsided. Two days after she had another, but less severe attack, and six days later she was again attacked with pains so severe that the use of morphin was necessary. After the attack the patient felt very weak and faint; a general peritonitis followed, and it was thought that there was an intestinal obstruction. From this attack she recovered slowly. Four weeks later she had sensations of throbbing, heat, and pain in the pelvis. This was followed by an abundant dark-brownish discharge from the vagina, containing soft, cheesy masses, looking like thick pus. Toward the end of each discharge an offensive odor was noticed. These discharges continued at intervals for about three weeks, being always preceded by sensations of throbbing, heat, and pain. At this time there was passed something resembling a small sack. From the beginning of the trouble the patient gradually declined and lost strength. She could not rest upon either side because of drawing sensations.

Her periods returned in February and again in March. These lasted but one day, the usual duration having been from one and a half to three days. The amount was small and there was much pain. She had also at times a thick white discharge from the vagina, small in amount.

She was admitted to the University Hospital on the 26th of March, 1896. Her general condition at this time was fair, there was a slight anemia; she was weak but not emaciated. Her appetite was fair, but digestion was not normal. The bowels were regular. Her locomotion was not difficult. There were no symptoms on the part of heart or lungs. During the week preceding the operation she had no temperature, and there was nothing in the general aspect of the case to suggest tuberculosis.

The physical examination was made on the 27th. The examination of the heart and lungs was negative. On the

[1] Read before the Michigan State Medical Association, June, 1896.

left side and low down close to the walls of the pelvis, there were dulness and some thickening. The vault of the vagina was tense. The cervix and uterus rested backward, the uterus being immovable, and very sensitive. It measured two and a half inches. At the left of the uterus, extending obliquely outward and upward toward the wall of the pelvis, there was an oval mass, rather irregular in outline and very sensitive. This pushed the uterus to the right, and the cervix somewhat backward. No examination of the blood was made. The urine examination was negative with the exception of the presence of a small amount of pus. Neither this nor the vaginal discharge was stained for tubercle bacilli.

With the exception of the cessation of the menses, the patient had had no symptoms or signs that would lead her to believe that she was pregnant, and she did not think that she was in that condition. The diagnosis of extrauterine pregnancy was, however, made by Dr. Martin, and the patient was prepared for operation. This took place on the 3d of April.

A median incision was made. The parts were found to be very vascular, and there were many adhesions between the uterus, appendages, and intestines. The right tube was found to be tortuous and enlarged, and the ovary cystic. These were removed and the stump cauterized. In the fimbriated extremity was a nodular hemorrhagic mass, about the size of a hazelnut. This was separated during the operation and preserved for future examination. The left ovary was found in about its normal location. It was enlarged and cystic. Above it, and attached to it by many adhesions, extended the thickened and twisted tube which passed upward into a mass about the size of a cocoanut. This mass was covered by friable adhesions, and lay up well toward the intestines. The distal portion of the tube passed into the lower surface of this mass and was lost in the adhesions covering it. About an inch to the right of this the greatly thickened tube was again found and traced on to the uterus, the cyst, therefore, arose from the tube about an inch and a half from this organ. The mass was dissected out with the greatest difficulty. When the adhesions covering the upper surface were removed, the head of a fetus was seen protruding from a rent in this portion of the mass. In removing the cyst the distal portion of the tube, together with the ovary, was separated. These were also removed. The uterine portion of the tube was severed about one-half inch from the uterus, and the stump cauterized. The cyst was then opened in the presence of the class and the fetus demonstrated, but the tubercular nature of the tubal disease was not then suspected. After the demonstration, the specimens were placed in four per cent. solution of formalin and brought to my laboratory.

On the next morning I began my examination of these, with the following results:

Right ovary and tube.—The right ovary was about the size of a small walnut; its surface was slightly nodular. Between it and the tube there was a mass of new tissue, about one-fourth of an inch thick, nodular, and hemorrhagic. From this mass a piece attached to the fimbriæ had been removed during the operation. The cut surface of the ovary showed the usual hyalin and cystic degeneration of the Graafian scars. The gross appearance of the small hemorrhagic mass was so characteristic of the hemorrhagic tubercles of the peritoneum, that it was at once cut and stained. The suspicion was confirmed by the microscopical picture. The mass consisted almost entirely of epithelioid cells; in some portions there was a reticulum of rather coarse connective-tissue fibers. There were also large areas of caseous necrosis, and among the epithelioid cells at the periphery of the caseated areas there were occasional giant-cells with many nuclei. Many of these giant-cells showed beginning caseation. There were but few blood-vessels. Large areas showed extensive recent hemorrhages, while others gave evidence of old extravasation by the large amount of hemosiderin scattered throughout the tissue. Sections of this mass were stained for tubercle bacilli in the usual way, with carbolic fuchsin, and the presence of the bacilli in scanty numbers was demonstrated.

On cutting into the distended right tube it was found to be filled with a soft, cheesy substance, which had not been entirely hardened by the formalin. Smears were made from this and stained for tubercle bacilli, with negative results. Thin transverse sections of the tube were then hardened in absolute alcohol, embedded in celloidin and cut. Some of these sections were stained with the Van Gieson's stain, and others with hemalum. These sections, on examination, were found to give a beautiful picture of tubal tuberculosis. The wall of the tube was much thickened, the vessels were congested, and there were numerous areas of hemorrhage and small-celled infiltration in the connective tissue, and between the layers of muscle. Small miliary tubercles were also numerous throughout the wall and under the outer coat. In many sections the lumen of the tube was entirely filled by a mass of tubercles in all stages of growth, the epithelium of the plications of the mucosa being entirely lost. The tubercles were chiefly epithelioid, with a limited small-celled infiltration around the periphery. In some sections giant-cells were numerous, in others only a few could be found. Extensive areas of caseation with occasional masses of calcification were found in some sections. In others the lumen was only partly obstructed, and numerous small miliary tubercles were scattered through the mucosa just beneath the epithelium, which was preserved. These tubercles were epithelioid, with a moderate small-celled infiltration. Giant-cells were numerous, but caseation was not extensive. Masses of calcification were not uncommon. In many places the folds of the mucosa presented a perfectly normal structure, except for the presence of the tubercles, but in others there was a marked inflammatory process with destruction of the mucosa, and the presence of large areas of small-celled infiltration. Some of these areas were freshly hemorrhagic, others were full of hemosiderin. Toward the uterine end of the tube the process became more miliary in type, and less marked. The sections of this tube stained for the bacilli gave negative results.

Left ovary.—The left ovary was much larger than the right, about the size of a large walnut. The surface was

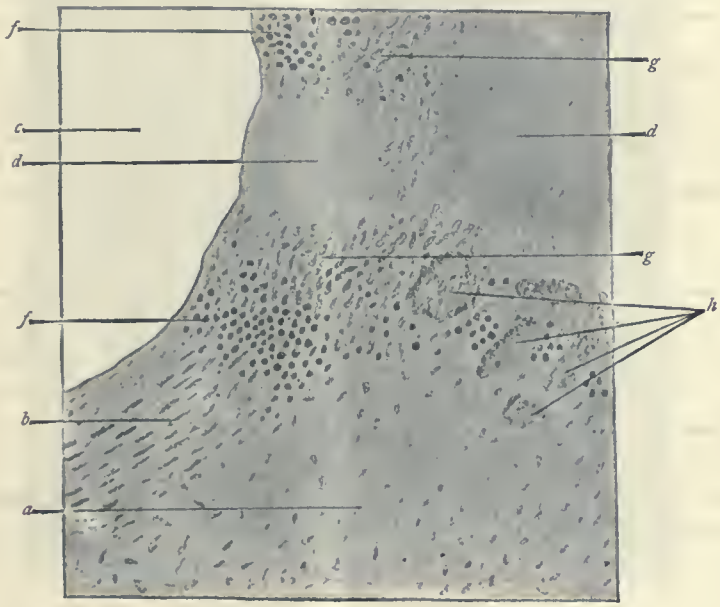
uneven and covered with the stringy remains of many adhesions which had bound it to the cyst. Many small cysts projected on its surface, and on its upper margin a true corpus luteum presented. The cut surface showed numerous small cysts, hyalin scars, and a true corpus luteum, about three-quarters of an inch in diameter, and of a pale yellow. The convoluted inner margin surrounded a mass of coagulated mucin which was slightly hemorrhagic. The fimbriated extremity of the tube was occluded by a small hemorrhagic mass, and in the fimbriæ were several small cysts and a few small, firm, yellowish nodules. The tube was much distended and twisted, but became about normal in size at the point where it passed into the cyst. On the surface of the tube and ovary there were several small, irregular, brownish masses attached loosely by thin bands of adhesions. Sections of these nodules showed them to be hemorrhagic tubercles of the same character as the one from the right ovary, having the same resemblance to the hemorrhagic tubercles so often found on the peritoneum.

Sections of the distal end of the tube, when examined microscopically, gave a picture similar to that of the right side. There was a miliary tuberculosis of the mucosa, but in some sections the appearance was that of a diffuse process affecting also the walls of the tube. There were large areas of caseation and calcification. Sections from this part of the tube, stained for the tubercle bacilli, gave negative results. The portion of the tube between the uterus and the cyst was also twisted and greatly distended, especially at the point where it passed into the cyst where its diameter reached an inch. It was filled with yellowish material of the consistence of firm cheese. The microscopical examinations of sections taken from this portion of the tube showed a chronic diffuse tuberculosis rather than a miliary process. The lumen was almost entirely filled in some places by a reticulated tubercular mass containing numerous giant-cells; and there were many areas of caseation and calcification. Only a few of the epithelial folds remained preserved. In many places the process extended into the muscular coat, and quite large tubercles were occasionally found there.

Cyst.—The cyst consisted of an outer capsule inclosing the red, spongy, and irregular-shaped mass, which comprised the placenta and the fetal membranes. The outer surface of the cyst was rough, somewhat irregular, and covered with the remains of stringy adhesions. On cutting through the wall numerous yellow areas were found, of varying size, from that of a pin-head to that of a small finger-nail. Some of these were firm, others were soft and cheesy. These masses extended throughout the placenta and fetal membranes. In the cavity of the cyst lay a male fetus, flattened and somewhat macerated, about seven inches in length. Its age was evidently between three and four months, the finger-nails and the glans penis being formed, but the prepuce and scrotum not yet developed. The umbilical cord was about eight inches long, and arose from the lower part of the cyst, very near the large tubercular mass in the uterine portion of the tube.

Fetus.—At about three-fourths of the length of the cord, from its origin toward the fetus, there were several well-marked nodules, one containing yellowish caseous material, the largest one quite firm, except in its center,

FIG. 1.



SECTION OF UMBILICAL CORD (ABOUT 175x).[1]

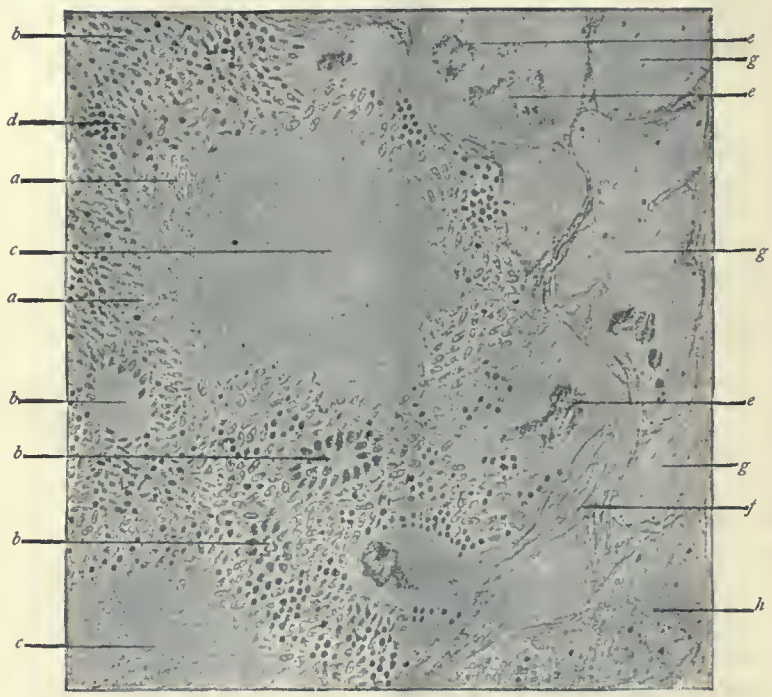
a—Normal tissue of cord. *b*—Wall of umbilical vessel. *c*—Lumen of vessel. *d*—Areas of caseation. *f*—Small-celled infiltration. *g*—Epithelioid cells. *h*—Masses of calcification.

[1] Made from formalin-hardened and celloidin-imbedded portion of cord, stained with Van Gieson's stain. Owing to the partial necrosis of the cord it was necessary to greatly overstain in order to bring out the nuclei, the tuberculous area, however, staining much more deeply than the tissue of the cord.

which was soft and yellow. These were cut off for hardening and embedding. The fetus was also opened, and the liver, spleen, kidneys, and lungs, were removed and hardened. These organs were almost entirely necrosed, the liver consisting only of a reddish, cheesy mass, crumbling into bits. Some of the yellow areas in the cyst-wall and placenta were also prepared for examination. The microscopic examination of the sections taken from the cyst-wall showed it to be the greatly distended tube, as the thin layers of muscle could still be detected. The yellowish areas in the wall proved to be giant-celled epithelioid tubercles with calcification. The examination of the similar areas in the placenta showed them to be the same thing. Throughout the whole placental tissue typical tubercles could be found. In one section, stained for tubercle bacilli, their presence was demonstrated.

The tuberculous changes in the placenta could be separated into two groups according to their location, a villous and an intervillous form. In the first the earliest changes took place within the villus itself, the epithelioid cells arising from the connective-tissue cells of the villus, or possibly from the endothelial cells of the placental capillaries, though this could not be shown. Whatever the origin of the tubercle, it is certain that in its development the connective-tissue cells of the villi play the chief part in the production of the epithelioid cells. In those villi in which the process was in an early stage and confined to its inner portion the outer surface remained intact, but with the increased growth of the tubercle this was lost, and the epithelioid cells had broken through into the intervillous spaces. In its further growth the tubercular tissue completely filled these spaces, and in many cases extended around normal villi which stood out sharply against it. The intervillous tubercles were far more abundant than those originating primarily in the villi. In these the first change observed was a proliferation of cells on the surface of the villus at a point where the outer layer of cells could no longer be seen. The connective tissue of the villus, however, presented no change. It is probable that here the epithelioid cells arose from a proliferation of the cells covering the villi. The growth of the tubercle is then outward into the blood-spaces and consists of a proliferation of its own epithelioid cells. This growth, in many cases, was very extensive, filling in completely the spaces between many villi and entirely surrounding them. In many cases prolongations of epithelioid cells could be seen extending out into the masses of fibrin which filled many of the blood-spaces. The areas of caseation were in those parts of the new tissue farthest away from the circulating blood, and, as a rule, the giant-cells lay in the central portions of the mass, and not at the periphery. In some cases the tubercular growth seemed to extend inward into the tissue of the villi as well as out into the blood-spaces. The majority of the villi primarily affected, as well as those surrounded by tubercular tissue, showed more or less degeneration. In many of them the entire outer layer of cells was lost, the connective-tissue nuclei stained very faintly, and there was mucous or fatty change with large

FIG. 2.



TUBERCULOSIS OF PLACENTA (170x).[1]

a—Epithelioid cells. *b*—Giant-cells. *c*—Areas of caseation. *d*—Small-cell infiltration. *e*—Masses of calcification. *f*—Fibrin. *g*—Placental villi (Most of these show mucous degeneration and calcification). *h*—Red blood-corpuscles.

[1] From portion of placenta hardened in formalin and alcohol; cut in celloidin and stained with hematoxylin.

masses of calcification. These changes are all shown in the drawing in which the intervilious form is reproduced.

As to the manner of infection of the placenta, it seems very probable that the bacilli set free from the diseased maternal structures of the tube came with the maternal blood into the intervillous spaces. Here they were deposited upon the surfaces of the villi of the fetal placenta and set up their characteristic changes. As to the primary tubercles in the villi the origin is not so clear. It may, however, be supposed that their production may be due to an entrance of bacilli into the circulation of the villi, and hence into the fetal vessels, at those points where the epithelioid cells have grown into the villus from its surface; and with the caseation and breaking down of the new tissue the bacilli have been set free into the capillaries of the villi, and so could pass into the circulation of the fetus. Since it is definitely shown that the placental tissue has no immunity against tuberculosis, there is no reason to believe that the spread of the process through it would differ in any way from that in any other part of the body.

The sections from the nodules in the cord showed, near the necrosed wall of a large vessel, a loosely reticulated tissue of epithelioid cells and small-celled infiltration. No giant-cells were found, but the character of the tissue with areas of caseation marked it as undoubtedly tubercular. The microscopical examination of the internal organs was negative. The liver consisted almost entirely of formless dead matter. Hundreds of sections of this were stained for the bacilli with negative results. It is greatly to be regretted that we did not recognize the existence of tuberculosis before the specimens were put into the formalin, as the presence of bacilli in the internal organs might have been shown by injecting animals with portions of the organs, or by making cultures from them. Only in the lung was anything like a tubercle found. On cutting this organ, after hardening preparatory to imbedding, two whitish areas about the size of small pin-heads were seen. On section these proved to be two small areas of complete necrosis where the structure was lost, while the tissue about showed faintly staining nuclei without this loss of form. These were, therefore, very highly suggestive of miliary tubercles, but the fact could not be positively decided. One of my assistants thought that he discovered tubercle bacilli in a section of the kidney stained for these, but when I went to look at them they could not be found. Therefore, so far as the fetus is concerned, the actual demonstration in its structures of tubercular changes must be confined to the membranes and cord, but it seems almost certain that the internal organs must have been similarly affected, though this could not be demonstrated beyond all doubt.

The patient died of general peritonitis on the 13th of April, ten days after the operation. An autopsy was refused, so the existence of tuberculosis in the other organs could not be ascertained. As mentioned before, there were no signs or symptoms which would lead us to suspect any other localization of the disease, so that I think the case may be looked upon as a primary tuberculosis of the genital tract. From a sister of the patient it was learned that a year and a half ago the latter's husband had been ill with fever, night-sweats, general weakness, and loss of flesh, and was on this account thought to have consumption, but he afterward entirely recovered. The family physician, in answer to my letter of inquiry, informed me that the husband is now perfectly well, without signs or symptoms of tuberculosis. Specimens of his urine, which were sent to me for examination for tubercle bacilli, have not arrived, so I have been unable to throw any definite light upon the etiology of the patient's condition, or to establish any relation between it and her husband's symptoms of a year and a half ago.

In conclusion, tuberculosis of the tubes, it seems to me from this case, must be considered as an etiological factor in the production of ectopic gestation. If the obstruction of the tube hindering the progress of the ovum toward the uterus is the chief factor, we have in the almost complete obliteration of the canal by the numerous miliary tubercles in the mucosa, a most favorable condition for its occurrence. It is very probable that the salpingitis which is found to exist in almost every case of extrauterine pregnancy, and which is usually looked upon as the causal factor, may, in more cases than is now suspected, be found to be tuberculous.

Up to a very short time ago, tuberculosis of the female genital tract, though it had been known to exist for a long period of time, did not assume that importance which it is now beginning to hold. During the last three years it has been shown that far from being a rare disease, it occurs in a very large proportion of all the cases treated for inflammatory disease of this tract. Williams, of Johns Hopkins, in a very exhaustive article in the "Johns Hopkins Hospital Reports for 1892," reviews the subject up to that year. He makes the statement that in his own experience, about eight per cent. of all the cases in which the appendages are removed for inflammatory disease are tubercular; in other words, every twelfth case of adherent tubes and ovaries, or pus-tubes, is of tubercular origin. He further emphasizes the difficulty of making a microscopic diagnosis. Of his cases only twenty-five per cent. were suspected tuberculosis, seventy-five per cent. being unsuspected as far as this condition was concerned. Since the ultimate diagnosis is, therefore, a microscopical one, it is very probable that a wider experience in making these examinations will increase greatly the proportion in which it is found to occur. The importance, on this account, of a technical examination, as a matter of routine, in all of the cases of tubal inflammation, cannot be too strongly urged.

Tuberculosis of the ovary is not so common as that of the tubes, but still occurs so frequently that it cannot be looked upon as a rare condition. It is most frequently met with on the surface of the organ, but Williams and numerous other observers have found it in the body of the ovary, even in the walls of cystic tumors. With it there is usually found a tuberculosis of the tubes or uterus. In our own case the small nodules attached to the surface of the ovary are really tubercles of the peritoneum. It is here worthy of note that tuberculosis of the tubes must be looked upon as perhaps the most important factor of infection in tubercular peritonitis. It is due largely to the fact that laparotomy has lately been so extensively adopted

as a cure for this condition that the occurrence of tubercular salpingitis has been discovered to be of so frequent occurrence, since in the majority of cases the conditions have been found to be coexistent. The small nodules that were found in this case may, I think, be looked upon as an early stage of tubercular peritonitis in which the infection undoubtedly arose from a diseased tube. The location of the tubercles upon the surface of the ovary and in the fimbriated extremity all point strongly to this mode of origin. It should be mentioned here, however, that some authorities believe the tubal disease to be always secondary to that of the peritoneum, the tube taking in the bacilli from the peritoneal cavity.

Up to the date of Williams' article in 1892, only one case of tuberculosis of the placenta had been reported, and from the description given of that case its nature is somewhat doubtful. But F. Lehmann, in 1893 (*Deutch. med. Wochenschr.*, 1893), found typical tubercles in the placenta of a woman dying from acute miliary tuberculosis in the seventh or eighth month of pregnancy. Schmorl and Kockel, in 1894 (Beiträge v. Seigler, xvi, 1894), also made a report upon this condition, so that this is the third instance in which placental tuberculosis has been reported. Schmorl, Birch-Hirschfeld, and Landouzy, had, however, demonstrated the presence of the tubercle bacilli in the blood of the placenta and of the fetal organs, and were able to make cultures and successful inoculations with material from these organs. Histological changes were not definitely ascertained by these investigators.

The presence of the tubercles in the umbilical cord makes the case important, because it is the first one reported in which that condition has been found. This gives added evidence to the still-mooted questions of the inheritance in the child of tuberculosis from the mother. I regret deeply that I could not satisfy myself as to the presence of tubercle bacilli in the internal organs of the fetus, as it seems almost certain that they must be present.

The cases mentioned above, in which the presence of the bacilli was demonstrated in the fetus, were all cases of acute miliary tuberculosis, the mother dying in pregnancy. It seems very improbable that infection of the fetus in this disease can play much part in the inheritance of tuberculosis because of the death of parent and child before birth occurs. It would be more important to prove the possibility of infection from a localized tuberculosis of the tubes or uterus in which condition the fetus might go to full term and delivery, and so come infected into the world. This case, I think, goes very far toward proving the possibility of this event.

MEDICAL PROGRESS.

Vaginal Disinfection.—The disinfection of the vagina before the birth of a child has been discarded in many lying-in hospitals, and it has been widely claimed that such previous disinfection was a positive danger on account of the possibility of carrying germs from the external genitals into the vagina to set up puerperal fever. AHLFELD, who has recently published "*Ante-partum* Vaginal Disinfection" (*Deut. med. Wochenschr.*, 1896, No. 13), an elaborate statistical comparison of the results obtained in the different maternity hospitals of Germany, attacks this view, the correctness of which is not sustained by his figures. Reckoning only normal labors, the lowest mortality percentages were obtained in Würzburg, Marburg, and Halle, these hospitals having respectively 0, 28, and 48 deaths per hundred thousand, *i.e.*, an average of 0.014 per cent. In all of these hospitals vaginal disinfection is employed, and in no other hospital has such a favorable result been obtained.

General Suppurative Peritonitis Cured by Laparotomy.—Suppurative encysted peritonitis is often caused by laparotomy, not so the generical purulent form. JABOULAY (*Province Médicale*, May 2, 1896), has operated upon thirteen cases of the latter, with three successes. The general condition of the patient was good in every case which had a happy termination. The operation consisted simply in opening the peritoneum and draining it by several rubber tubes. Manipulation of the intestines was carefully avoided, and no lavage was employed. The wound was lightly stuffed with gauze and left open. This same course of procedure was adopted in all cases, however caused, and even in the presence of fecal matter.

THERAPEUTIC NOTES.

Sarcoma of the Skin Cured by Arsenic.—A case of sarcoma of the nose, with secondary nodules in the face, treated by POSPELOW (*Arch. f. Dermatol. u. Syphilis*, vol. xxxiv., part 2) with large doses of arsenic (up to three-fifths grain daily) for a considerable period. The tumors entirely disappeared, and two months later had not recurred. The author expresses himself as in no way certain that recurrence will not yet take place. He warns others against too early abandonment of the treatment in similar cases, as very large doses must be given for two or three months, at least, before a result is looked for. The character of the tumor was in this case determined by histological examination.

Local Treatment for Neuralgia.—SABBATINI recommends as an application in neuralgia:

℞	Menthol } aa Guaiacol }	. . .	3 i
	Alcohol. absolut.	. . .	3 xviii

A dram of this mixture is to be rubbed lightly into the affected part two or three times a day. In the intervals a cotton dressing is employed.

Pruritus Vulvæ Cured by Cleanliness.—In a paper recently presented to the Gynecological Society of Berlin, RUGE (*Berlin. klin. Wochenschrift*, June 22, 1896) insists on the importance of cleanliness in pruritus vulvæ. The disease is almost always purely local, and a thorough cleansing of the genitals, externally and internally, with soap and hot water will remove the germs, and so cure even the worst cases, almost without exception. In gonorrhea a similar treatment is beneficial.

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SATURDAY, SEPTEMBER 19, 1896.

THE OPTICIANS AS OPHTHALMOLOGISTS.

AN effort was made during the last session of the New York Legislature to pass a bill entitled "An Act to Incorporate the Optical Society of the State of New York, etc." This objectionable measure was discussed at the time in the columns of the NEWS, and the efforts of its promoters were defeated. But as it bids fair again to engage the attention of the Legislature during the coming winter, it seems appropriate to consider the merits of the case as set forth in a recent issue of the *Optical Journal*. The writer says: "It is now pretty generally conceded among oculists, opticians, and the public, that the time has arrived when the practice of adapting glasses to the sight should be regulated by law."

This is an admission we are pleased to note, but the question naturally arises, is there any reason for more laws on the subject? Those already existing seem to cover the ground sufficiently, and define plainly enough who shall practise medicine in the State.

By their provisions some people, not physicians, are exempt from the application of the Medical Act, namely, manufacturers of artificial eyes, limbs, and orthopedic instruments or trusses, and in fitting such instruments on persons in need thereof. But it does not exempt any class of men who fit eye-glasses, and, as the fitting of eye-glasses for the relief of headache, neuralgia, or any reflex due to defective vision is practising medicine quite as much as the giving of remedies of any kind for the relief of any of the ailments to which flesh is heir, it seems as if the adapting of glasses to the sight were sufficiently regulated by law at the present time.

Admitting the truth of this argument, it follows then that the remaining portion of the article above quoted loses whatever force it would otherwise have. For instance, it goes on to say, "At the present time, physicians and opticians alike are lawfully engaged in the practice of optometry. . . . Therefore, any legislation which would interfere with such vested rights, would not only be cruel and unjust, but also unconstitutional."

If the opticians have been *lawfully* practising optometry, as the gentleman puts it, what is the use of complaining at all; why do they not go on quietly practising it and say nothing about it?

The truth of the matter is that the practice of optometry by the optician is an invasion of the prerogatives of the medical practitioner, and is therefore not lawful.

The fitting of glasses in hypermetropia, myopia, and astigmatism, the discrimination between amblyopia without optical lesion and that due to disease, the determination whether muscular defects are due to refractive errors or to grave spinal lesions, all these and many more tell us plainly that the fitting of glasses to the eyes should be in the hands of the physician alone, whose medical education and training make him competent to deal with these questions, which even to his mind are sometimes difficult, if not impossible, to solve.

The adjusting of spectacle frames, the proper centering of lenses, and many of the details of the optician's calling, necessitate experience and knowledge, as much as the compounding of prescriptions for drugs. If the opticians would confine their efforts to perfecting their ranks in this particular, we feel confident that the coöperation of the medical profession would be theirs.

It is a simple matter to talk of the "vested rights" of the opticians, but they have no rights that are greater than the vested rights of citizens generally, and efforts to obtain "rights" that would be detrimental to the public weal ought never to meet with success, nor will they in this particular if the profession will assert its rights, insisting as a necessary requirement of all who desire to become practitioners in any sense, that they comply with the laws govering medical practice.

RECENT PROGRESS IN GYNECOLOGY.

SURGICAL TREATMENT OF RETROVERSION OF THE UTERUS.

Probably no department of gynecology has received so much attention as displacements of the uterus, and of these, retroversion has been the most important. This condition was one of the earliest to attract the attention of the specialist, and received its due share of attention in the way of treatment by tampon and pessary. The next step in the evolution of the treatment, was the introduction of operative procedures. These consisted in plastic work, which aimed at the restoration of the floor of the pelvis, and the reëstablishment of the integrity of the vaginal walls. This departure from tampon and pessary, necessarily implied a lack of satisfaction in the efficacy of their use; but, while it recognized the wisdom of operative interference, it was itself founded upon a false principle. This error consisted in the assumption that the support of the uterus came from below.

Nature's plan of sustaining the various organs of the body in their respective positions, is that of suspension by ligaments. The brain, the heart, the lungs, the liver, spleen, kidneys, all are suspended by ligaments from above. The uterus, being the lowest organ in the body, was supposed to rest on the floor of the pelvis, and, therefore, offered the only exception to the rule of suspension. The inadequacy, however, of all operative procedures for the restoration and building up of supports in the parts below, eventually opened the eyes of gynecologists to the fact that the uterus had ample ligaments to sustain it in place, even when the perineum was entirely obliterated, and the question arose, why then should not the uterus be amenable to the systematic plan of nature, and depend on its ligaments for position and support? This was a question whose answer came with the asking, and malpositions came to be recognized as the result of relaxation in the uterine ligaments. The corollary to this was: In case of misplacement, restore your ligaments, and suspend the uterus. All the various procedures that have been suggested since that time, are but the application of this one predominating principle. Out of it came all the various operations for shortening the round ligaments, as well as the various methods of hysterorrhaphy.

But modify these operations as you may, both of them have failed to quite reach the mark of an ideal operation, and involve many serious objections. Alexander's operation is only applicable to cases in which the uterus is movable. Hysterorrhaphy converts a retroverted organ with adhesions to an anteverted organ, but with adhesions. Gynecologists, generally, now recognize anteversion as the normal position of the uterus. They also recognize the fact that if that position can be maintained, the force necessary to support the organ is reduced to a minimum. Through the facility gained in vaginal work by vaginal hysterectomy for cancer and fibroid tumors and the operations upon the appendages, came the suggestion of relieving retroversion by operative procedure through the same route. This was put into practical application by Mackenrodt and others, in the operation known as vaginal fixation. While this operation restored the uterus to its normal position, and relieved all symptoms, it was found by several German operators to bring more or less serious complication and disaster in those patients who became pregnant. The advantages to the patient of this procedure over Alexander's operation and abdominal fixation, were so apparent that those who had tried it were little inclined to surrender these advantages, without serious effort to so modify the operation that the unfortunate consequences might be averted. Mackenrodt's original operation, briefly stated, consisted in making an incision through the anterior wall of the vagina, and dissecting the bladder from

its attachments to the uterus, anteverting the uterus, and stitching its anterior wall directly to the edges of the vaginal incision. This procedure carried the fundus too low in the pelvis, and held it so firmly that in those cases where pregnancy occurred the anterior wall was prevented from taking its due part in the normal expansion of the uterus, and the fundus from properly rising out of the pelvis. It quickly became apparent that this difficulty might be overcome by allowing the uterus more freedom of motion, and various suggestions have been offered for accomplishing this object. The latest modification of the operation, and one which commends itself more fully than any other, has been suggested by Wertheim (*Centralblatt f. Gynäk.*, 1896, No. 10). His method consists in utilizing the round ligaments for attachment to the vaginal wall. After incising the vagina and dissecting off the bladder the finger is slipped over the fundus, the round ligaments are hooked up at a reasonable distance from the horn of the uterus, and attached on either side to the borders of the vaginal incision. The immediate results of the operation are excellent, but as no case of pregnancy after the operation has been reported, the crucial test of its value has not yet been applied. It seems reasonable to expect, however, that with the freedom of movement thus allowed the uterus the unfortunate consequences attending Mackenrodt's operation will be absent. It is also still uncertain whether the position will be maintained after parturition. If this shall prove to be a permanent relief of the displacement, and free from the disasters of Mackenrodt's method, it will score a great advance over both the Alexander operation and abdominal fixation.

A more careful analysis of the supports of the uterus points to the utero-sacral ligaments as a simpler and, from an anatomical and dynamic standpoint, more perfect means of retaining the correct posture of the uterus. When a woman is in the erect posture the uterus lies normally upon its anterior face; and if the cervix can simply be held sufficiently high in the hollow of the sacrum, gravity will carry the fundus to the front. The tissues that accomplish this are the utero-sacral ligaments. In all cases of retroversion, these ligaments must relax sufficiently to allow the cervix to descend in the pelvis before retroversion can occur. If, then, these ligaments can be made sufficiently taut to maintain the cervix at its normal level, the uterus must perforce be held in a position of anti-version. When these ligaments have become elongated, the indication would seem to be to shorten them. This principle has been applied recently by Gottschalk (*Centralblatt f. Gynäk.*, 1896, No. 16) in two cases, with perfect result. Briefly stated, his technic consists in catching the utero-sacral ligaments, after opening Douglas' pouch, near their attachment to the sacrum and stitching them to the posterior surface of the uterus, just above the vaginal attachment. The success of Gottschalk in two persistent cases of aggravated retroversion invites further trial of this procedure. The principle is undoubtedly correct. The method allows of thorough and careful treatment of the appendages, and therefore is the most perfect one yet suggested for dealing with retroversion.

ECHOES AND NEWS.

Killed but not Struck by Lightning.—Globular lightning set fire to a woman's dress, near Angers, France, the burns causing her death soon after.

Another Use for the X-ray.—A German observer points out that by the use of the X-ray, brick-dust can be traced in Cayenne pepper, sand in spices, and chalk in flour.

A Remedy for Depopulation.—As a means of stopping the depopulation of France, Dr. Janel, in a paper read before the Academy of Medicine, proposed to throw the burden of taxation from large families on to the rich.

The Amherst Infirmary.—The new infirmary at Amherst College, the gift of George D. Pratt of Brooklyn, will be erected by a Boston firm, and is to be completed on March 1st next. It will cost $17,000.

Quinin-growing in India.—The Government has declined to accede to the request of the private growers of cinchona that the Government plantation shall be discontinued and all supplies taken from the private growers.

Lunacy in Scotland.—The number of lunatics in Scotland for 1896 is 14,093, while in 1858 it was 5824. This is an increase of 142 per cent. The population has increased only 38 per cent. during the same period.

Fatal Case of Nose-bleed.—Julius Gottlieb, a law student, who had been affected with nose-bleed for about three weeks, died at Mt. Sinai Hospital, New York, September 12th. The cause of his death was pernicious anemia.

Two Insect Terrors.—An employee on a Mississippi steamboat died in great agony from a mosquito bite over the right eye. A ten-year-old boy of Marion County, Kan., was recently kicked in the eye by a grasshopper and the sight was immediately destroyed.

The Dangers of Decomposing Organic Matter. — The medical officer of health reported to the Tavistock, England, District Council several cases of diphtheritic croup, which had their origin in some children playing with the decomposing carcass of a sheep.

Floating Hospital Trips.—Forty-six thousand two hundred and fifty-three women and children were carried on the New York Floating Hospital during the season of 1896, which closed last week. Over 700 cases of severely ill children were treated in the wards without a death taking place on board.

Sanoform.—A substitute for iodoform has been introduced under the name of sanoform, by Gallinek and Courant. It is a bi-iodate of the salicylic methyl ether, without smell or taste, and unaffected by light. Being easily soluble in ether and vaselin it can be used like iodoform, in gauze, collodion, or ointments. It is a powerful desiccator, and prevents the decomposition of discharges.

Bicycling for Women Commended. — The Congress of Sanitary Institutes, which has been in session at Newcastle, England, has strongly endorsed bicycling as being the means of banishing a vast number of the derangements of women, and expressed the conviction that the average standard of the health of women bicyclists has undergone an appreciable elevation.

For a Biological Station.—The Hull gift of $1,000,000 for biological laboratories for the University of Chicago, has been supplemented by the proffer of $500,000 worth of property for a biological station. The donors are Mrs. Edward Roby, E. A. Shedd, and C. B. Shedd. The University will be enabled to control all the land and water it desires of the three thousand acres around Wolf Lake and the channel connecting it with Lake Michigan. Most of the necessary buildings for dormitories will also be given if the offer is accepted.

An X-ray Reform.—The Queen of Portugal, who is celebrated as a pursuer of the various fads of the hour, has been experimenting with the so-called X-ray. She has detailed the ladies of her court to serve as subjects, and has been making pictures of their skeletons. It seems that these gave such an alarming insight into the distortion wrought by tight lacing, that the female nobility of Portugal rushed to order gowns six or eight inches wider in their belt measure. It would be a curious instance of the unexpected turns of human affairs if tight lacing, denounced in vain by medicos and moralists, should finally be suppressed by Dr. Röntgen's invention, and fashion should turn to the Venus de Milo as her ideal of figure.

The International Congress of Psychology.—The third Congress of Psychology was held in Berlin, August 4th to 9th, under the presidency of Professor Stumpf of Berlin. Professor Flechzig, in a paper on association-centers, concluded that the frontal region of the brain is the location of associations of a higher and more abstract kind, and that in the region back of the motor, extending to the visual center in the occipital region, is a great center for the associations which bind the sense-functions together. Professor Lippe, in a paper on the unconscious in psychology, arrived at a return to the soul-substance theory—a hidden thing in which mental states, and especially tendencies of an active kind, may be preserved when we are not conscious of them.

Brooklyn's Supply Ponds to be Cleansed.—Brooklyn officials are working to remove the cause of the impure water that is being furnished to the residents of the city. The mains are flushed every day, some of the officials thinking the cause of the contamination is in the water mains, and not in the supply ponds outside the city. A careful analysis of specimens of the water derived from the various sources of supply shows that it contains no element which, in its present form, may be regarded as being deleterious to health. Engineer De Verona said the ten ponds that supply the city with water, are being carefully watched, and he does not think there will be any contaminating elements introduced into the supply from these sources. The ponds are to receive a thorough cleansing.

Obituary.—John C. Dixon, M.D., of Candor, N. Y., died August 8th, aged sixty-four years. He was a graduate of the Albany Medical College.—Emanuel F. Gerhard, M.D., a junior practitioner at Norristown, Pa., and an alumnus of the Jefferson Medical College, class of 1884, died August 13th, aged thirty-eight years.—James Northrup, M.D., a graduate of the old Geneva Medical School (now extinct) in the year 1857, and a physician of Woodstock, Ill., died August 8th.—William W. Waring, M.D., of Upper Marlborough, Md., died August 5th. He was a graduate of the University of Maryland Medical Department, in the year 1869.—George Dederick Holsten, M.D., of Brooklyn, died at Beaumaris, Ontario, Can., on August 21st, after an illness which had lasted more than three years. He was born in New York in 1857, and graduated in 1882 from the University of New York. Subsequently he became a specialist in dermatology, and won much success in his chosen line of work. He was president of the Brooklyn Dermatological Society, and editor of a paper devoted to the interests of the science.

Typhoid at League Island.—A report from Surgeon Siegfried of the battleship "Massachusetts," says that on August 31st he was compelled to transfer from the ship to the Brooklyn Hospital the fifth case of typhoid fever since that vessel was commissioned at League Island, June 10th, last. It appears that the battleship "Indiana," also fitted out at League Island, has also had sixteen cases of typhoid fever aboard in her very brief career. One of the "Massachusetts'" men died shortly after the vessel left the yard. The surgeon attributes the disease to the bad drainage of Philadelphia, and the condition of that part of the city nearest League Island, and recommends that no ships be commissioned or fitted out there until the conditions are changed. Surgeon General

Tryon, in his indorsement of the report, corroborates the statements, and adds that the four cases of typhoid which developed this summer on the "Bancroft," were directly traceable to the Schuylkill water supply. It is stated at the Navy Department that the "Dolphin" invariably develops cases of malaria after leaving the Washington yard, which is at a focus of sewers.

The Hygienic Value of Fruits.—Dr. Dupoury, in a Paris journal, divides fruits into five classes, each of which possesses a special hygienic value—the acid, the sweet, the astringent, the oily, and the mealy. To the first, including cherries, strawberries, raspberries, gooseberries, peaches, apples, lemons, and oranges, he accords great merit. Cherries he prohibits entirely to those affected with neuralgia of the stomach. Strawberries and raspberries he recommends to those of bilious, plethoric, and gouty temperament, and denies them to those in whom diabetes is present or suspected. Of the sweet fruits he considers that plums are of special hygienic value, and even a preventive in gout and articular rheumatism. He is an ardent advocate of what in Europe is called the grape-cure, in which grapes for several days form the exclusive aliment. The patient begins with the consumption of from one to two pounds daily, with a gradual increase to eight or ten pounds. After a few days of this diet, a marked improvement in the general health is noticeable. The appetite improves, the digestion becomes easy and rapid, and increased capacity to withstand the fatigue of outdoor exercises is noticeable. The grape-cure is particularly recommended to the anemic, dyspeptic, and consumptive, in diseases of the liver and in gout.

The Possible Individuality of Atoms.—Mr. Baly has recently published his conclusions on the two-fold spectra exhibited by oxygen and nitrogen. The popular persuasion is that all the atoms of a particular element are exactly alike. Gaseous molecules are free to move in any direction, and when gas or vapor is rendered luminous, as by passing an electric spark through it, unlike an incandescent solid or liquid, it does not give a continuous strip of color in the spectroscope, but a number of bright lines at intervals separated by dark gaps. If, while the bright lines are being observed, a beam from an electric light or limelight is directed toward the spectroscope, they are seen as dark lines upon the ribbon of variegated color, which distinguishes an incandescent solid. The change is supposed to be due to the absorption by the gaseous molecules of light of certain definite wave-lengths. Mr. Baly's observations go to show that the variability in the spectra of oxygen and nitrogen is due to some profound difference of condition in the gas under different circumstances. For the gas that collects about the point whence the sparks leap across the containing vessel, after a little while is slightly dimmer or lighter than at the other. One of two results must follow: Either those gases (oxygen and nitrogen) are not elements, or there are two kinds one with an atom a little heavier than the other.

"The Great Sin of Great Cities."—The correspondent at Rome, Italy, of the London *Lancet*, August 29th, considers, under the above caption, the question of the alleged increase, in that country, of venereal disease. He says: "Prostitution is a growing evil in Italy, and its Nemesis, syphilitic disease, is correspondingly on the increase. Attempts to control it are made from time to time, but hitherto with the result of driving it more and more into clandestine channels. The sanitary vigilance enforced against it and its pathological sequelæ thus loses in efficiency, till venereal maladies of every kind are becoming a formidable menace to the public health. In these circumstances, the Prime Minister, the Marchese di Rudinì, who also holds the portfolio of the Interior, has addressed a circular to the prefects throughout the kingdom, calling upon them to enforce the regulations imposed by law for the surveillance of prostitution and its victims. In a country like Italy, where, even in the army and navy, the regulation diet is none too generous or sustaining, the diffusion of such maladies is a public disaster, the low resisting power of the people not only favoring lesions of a kind unknown in better-fed communities, but depressing the standard of health by hereditary deterioration. The gross negligence with which the inspection of prostitutes was quite recently practised in garrison towns (Ravenna had an unenviable notoriety among these) compromised seriously the efficiency of the troops already exposed to unsanitary conditions, inducing frequent illness, and even premature breakdown."

CORRESPONDENCE.

CONFIDENCE MEN IN OHIO.

To the Editor of THE MEDICAL NEWS:

DEAR DOCTOR.—On or about the first of February last, a tall, well-built man, about thirty-five, smooth, forcible, but rather repulsive talker, a sort of "hail fellow well met," wearing a forced scowl, came into my office and introduced himself as Mr. Conway, representing Geo. A. Parker, Sons & Co., Local Reference Exchange, head office for New England, Boston, Mass., an organization for collecting accounts, especially old accounts. A small, rather slender young man representing himself as Mr. Conway's brother, and a tall, slender, dark-haired young man, whose name I do not know, were here with him, helping him work the town.

They established a local office here, and got nearly 250 of our best business and professional men to subscribe, and give their notes for $20.00 each, payable six months after date. My faith being good in this Mr. Conway's representations of his plan and work, I unwittingly gave him a good recommendation.

But recent developments lead me to recall that recommendation, as the concern is not worthy of such confidence. I have twice written to and asked this Mr. Conway to return my letter, to which he has seen fit to give no attention. Therefore I take this opportunity of protecting myself against any further influence that document may have, and warn at least my professional brethren against subscribing to the concern, for his statements are misleading, unreliable, and not worthy of confidence.

On inquiry, the Chief of Police of Boston, Mass., recently informed me that there is no such firm or concern as Geo. A. Parker, Sons & Co. Local Reference Exchange, in the city.

These parties agreed to send a letter every ten days to each debtor until five letters had been sent, then if payment had not been made, to sue the accounts and advertise the judgments at five hundred different places over the city. Nearly six months elapsed before the first and *only* list was made up and posted on bill-boards at nearer fifty than five hundred different places, and that list, on investigation, proved to be bogus, as neither the name nor residence of anyone on the list could be found.

They further represented that the only expense to a subscriber, when an account was sued, was ten per cent., and that not payable till the judgment was collected. When some of our members urged suit, they were politely informed they would have to put up costs.

As these fellows are going systematically from town to town throughout the State, I send this statement as a warning to my fellow practitioners that they may beware of them.

Yours very truly,

J. H. SEILER, M.D.

AKRON, OHIO,
August 25, 1896.

SOCIETY PROCEEDINGS.

AMERICAN NEUROLOGICAL ASSOCIATION.

Twenty-second Annual Meeting, held at Philadelphia, Pa., on Wednesday, Thursday, and Friday, June 3, 4, and 5, 1896.

FIRST DAY—WEDNESDAY, JUNE 3D.

The president, F. X. DERCUM, M.D., of Philadelphia, called the meeting to order and delivered an address on

THE FUNCTIONS OF THE NEURON.

The question had arisen in his mind as to whether the neuron was not an absolutely fixed morphological element, and whether it did not possess a certain, though perhaps, limited power of movement. He found that this thought had occurred independently to three other observers, one in Germany, and two in France. Ramon Cajal, however, opposes the theory of the mobility of the neuron, and maintains that the neuroglia cells possess a great deal of mobility. He points out, for instance, that the neuroglia cells of the cortex are at times stellate, and at others much elongated. Their processes have numerous short arborescent and plumed collaterals. Two phases can be observed in them, first a state of contraction, in which the cell-body becomes augmented while the processes become shortened and the secondary branches disappear, and secondly, a state of relaxation, during which the processes of the neuroglia cells are again elongated. He further maintains that the processes of the neuroglia cells, in reality, reoresent an insulating or non-conducting material, and that during the period of relaxation they penetrate between the arborizations of the nerve-cells and their protoplasmic processes, and render difficult or impossible the passage of nerve-currents. On the other hand, when the processes of neuroglia cells are retracted, the various nerve-cell processes which they formerly separated from each other are now permitted to come into contact. It seems, therefore, that Ramon Cajal admits the very thing against which he contends.

Take the simple example of an hysterical paralysis and see how easily it may be explained. The neurons of a certain area of the cortex, for instance, retract the terminal branches of the neuraxon to such an extent that the latter are no longer in contact, or sufficiently near to the neurons in the spinal cord which supply the muscles of the paralyzed parts. When power is suddenly re-established in hysterically palsied limbs, it simply means that the terminal branches of the cortical neuraxon, previously contracted, are again extended so as to re-establish the proper relations with the spinal neurons. It would be interesting to follow out the ideas here brought forward in their application to the various phenomena presented by hysteria.

Turning to hypnotism, a ready explanation is afforded for the phenomena presented, and leaving this field entirely, we can see what an enormous value this interpretation of cortical action is for normal mental phenomena, taking for example the familiar instance of sleep.

J. J. PUTNAM, M.D., of Boston, read a paper entitled:

ACUTE NON-SUPPURATIVE HEMORRHAGIC ENCEPHALITIS.

A young boy was attacked suddenly, two weeks after having been ill with the mumps, with paralysis of motion of both eyes, and lids, deafness, coma, impairment of swallowing, right hemiparesis, and double optic neuritis. At the end of three months, however, he had recovered, except for slight double vision, and slight impairment of hearing and eyesight, and except that ever since the illness he had been subject to epileptiform attacks of short duration. These attacks were gradually becoming less frequent. Reference was also made to another case reported by the reader in 1892, where, besides other serious cerebral symptoms, including double optic neuritis, temporary loss of hearing had also occurred. The cases reported by Oppenheim were given in outline, and the interesting fact noted that his patients, like the one here referred to, were mainly children.

DR. LANDON CARTER GRAY of New York, asked if any of these cases had retraction of the neck.

DR. PUTNAM answered that he was not certain as to its presence in his own cases, but it was present in the other reported cases.

DR. GRAY thought that the best macroscopical description of hemorrhagic encephalitis had been given by Elam some years ago. All cases seen by him (Gray) had proved fatal. In many instances the diagnosis was attended with extreme difficulty. He had generally been willing to diagnose these cases as meningitis.

DR. JOSEPH COLLINS of New York, had observed a case of hemorrhagic encephalitis with autopsy, which corresponded with the description given by Oppenheim. He read the report of the autopsy which revealed old leptomeningitis, hemorrhagic encephalitis, and a pachymenin-

gitis hemorrhagica. There was no case on record in which these three conditions had been found associated.

DR. B. SACHS of New York, said that the recognition of this form of cerebral disease showed a distinct advance in neurology. He had observed four cases. Two recovered and two died. In one case there was some doubt as to whether it was meningitis or not, as there was slight retraction of the neck, but no positive coma. He looked upon it as a milder disease than basilar meningitis. In one of the patients who recovered, the cerebral symptoms appeared simultaneous with the fever. The former lasted four days, leaving the patient with slight ptosis and paresis of the external rectus.

DR. GRAY asked if fatal cases have shown more violent symptoms than those that recovered.

DR. PUTNAM replied that some of the more violent cases recovered. In general the rapid development of severe coma is considered an unfavorable sign. It is frequently quite difficult to distinguish this condition from meningitis. He believed that the severity of the symptoms depends on the amount of poison absorbed into the circulation. We do not yet know the exact significance of retraction of the neck, which is a very unreliable diagnostic sign. In one of his own cases of influenza, with symptoms of encephalitis occurring in an elderly person, the brain was found only edematous. Sometimes changes are unrecognizable with the naked eye.

WM. OSLER, M.D., of Baltimore, read a paper upon

GENERAL COMPLICATIONS OF RAYNAUD'S DISEASE.

After referring to the frequency with which Raynaud's disease is met with in forms of insanity, he said that in a few cases cerebral manifestations, due apparently to vascular changes, similar to those which develop in the peripheral parts, had been described. In the case of a man in his wards, already reported in 1891 by Dr. H. M. Thomas, in which epileptic attacks occurred in the winter months only, in connection with local asphyxia and superficial necrosis of the ears, the patient had also hemiglobinuria. In another case, a woman, aged fifty-two, during a period of six years, local syncope and asphyxia occurred at intervals in the fingers and hand of the right side, sometimes with aphasia, and on several occasions, with transient paralysis of the right arm and leg. In the final attack the patient died with gangrene of the right hand and arm. The case of Weiss is believed to be the only other instance in which aphasia complicated the disease. In a third patient "falling attacks" of an indefinite character occurred in a young girl with local asphyxia of the legs between the knee and ankle.

In answer to a question of Dr. Riggs, Dr. Osler answered that this disease was rarely fatal. This was the second fatal case with which he was familiar. The literature, however, indicates a number of fatal cases. He considered the complications as having no direct relation with the disease. The associated conditions were rarely serious.

DR. PUTNAM presented a series of photographs showing the development of cretinism at various ages.

WALTER CHANNING, M.D., of Boston, read a paper upon

TUMOR OF THALAMUS,

and presented a case. The patient was an unmarried woman of good heredity, and by occupation a school teacher. She was of an active, nervous temperament, and the subject of hay-fever and asthma until the spring of 1895, when she was under the care of a so-called "hay-fever specialist," and escaped the usual attack. Before admission to the hospital, November 29, 1895, she had been for some weeks mildly exhilarated, and extravagant in her ideas, but not enough so to interfere with her work until the 22d. The only physical symptoms she had complained of were headache and insomnia. Her disease was diagnosed by an alienist of experience as mild acute mania when she came to the hospital. Since her death, her friends have stated that she had weakness of the left arm before leaving them, but nothing was said of this in her history. She had expansive delusions and hallucinations of the taste and smell. She was unable to stand because of weakness in the left leg, and her left arm was weaker than the right, there being no power to move it above the elbow. Headache existed. There was little nausea. The pupils were equal in size and reacted to light. The eyes did not follow the finger. There was no ophthalmoscopic examination. The weakness in the left side was not so marked at the beginning as to attract special attention. It was later that its significance became apparent. Patellar reflex slightly exaggerated and alike on both sides; plantar reflex moderate; urine-color normal; reaction acid; specific gravity, 1022; urea normal; uric acid in excess; blood count, reds 4,804,000, whites 12,400. The mild maniacal excitement continued for the first week after admission. The patient was very restless in the bed, moving her head from side to side, and throwing her right arm over her head. She also often folded her arms rigidly across the chest, and clenched the fingers. After the first week she slowly sank into a stupor from which it was difficult to rouse her. The physical symptoms of central disturbance became rapidly more marked. There was entire loss of motion in the left arm, left leg, and later right leg, and extreme extension of both legs. The jaw became relaxed, interfering with respiration. The tongue fell back in the mouth. Breathing became jerky and irregular toward the end, and finally the relaxed jaw could not be replaced and death ensued. The autopsy was made by Dr. E. Wyllis Taylor of Boston, who found a boggy, cyst-like looking mass extending back an inch behind the posterior border of the optic thalamus and forward to the junction of the caudate nucleus with the thalamus, the mass apparently involving the latter in its entire extent. Microscopical examination proved the tumor to be a vascular glioma. The mental symptoms in this case seem to have been quite unlike those of the usual cases of brain tumor recorded, in which are found depression, dulness, irritability, stupor, and even pronounced dementia. Several interesting questions arise, as for instance: Which symptoms probably presented themselves first, the mental or physical? Why should there be so much mental disturbance in such a case? Was the mental trouble an accident, and independent of the tumor? If not; how can it be satisfactorily explained?

What diagnostic value do mental symptoms possess in cases of brain tumor?

DR. WHARTON SINKLER of Philadelphia, thought that the appearance of mental symptoms in thalamus tumors was of much clinical interest. In his experience, somnolence and mental symptoms were of frequent occurrence.

DR. GEORGE J. PRESTON of Baltimore, in this connection presented the specimen from a patient with hemiplegia and dementia, which showed a tumor occupying the right hemisphere, and a condition of condensing osteitis of the skull.

DR. CHAS. K. MILLS of Philadelphia, said that tumors of the brain have not only been confused with acute mania, but also with general paresis. It is sometimes very difficult to differentiate. It is not known that tumors, limited to the thalamus, produce any characteristic symptoms. They occasion mental symptoms on account of their destruction of associating cerebral fibers.

DR. SACHS had seen a case of brain tumor in a child in which mental symptoms predominated. The autopsy revealed a large tumor in the right frontal lobe. He did not feel convinced that the mental symptoms in Dr. Channing's case were attributable to the growth in the thalamus. Why might not this patient have had the mental disease independent of the tumor?

DR. THEODORE DILLER of Pittsburg, mentioned a case of tumor of the cerebellum in which the earliest symptoms were mental. The unexpected often happens in cases of brain tumor.

BURT G. WILDER, M.D., of Ithaca, N. Y., read a paper upon

THE ECTAL RELATIONS OF THE RIGHT AND LEFT PARIETAL AND PAROCCIPITAL FISSURES.

The parietal and paroccipital fissures may be either completely separated by an isthmus, or apparently continuous. When so continuous ectally, there may still be an ental and concealed vadum or shallow. Disregarding the vadum on the present occasion, the ectal relations of the two fissures may be designated as either continuity or separation. That continuity occurs more frequently on the left side has been noted by Ecker, Cunningham, and the writer. Hitherto, however, statistics have included unmated hemicerebrums as well as mates from the same individuals. The following statement is based on the cerebrums of fifty-eight adults of both sexes and various nationalities and characters. The speaker has examined forty-eight; the other ten have been accurately recorded by Bischoff, Dana, Jensen, and Mills. So far as these fifty-eight individuals are concerned, the most common combination, viz., left continuity and right separation is decidedly the rule with the moral and educated, less frequent with the ignorant and unknown, the insane and negroes, and does not occur at all in the murderers. The only instance of the reverse combination (left separation and right continuity) is an insane Swiss woman. The only two known to be left-handed represented the more frequent combination of left continuity and right separation.

JOSEPH COLLINS, M.D., of New York, read a paper upon

DOES ANTISYPHILITIC TREATMENT PREVENT THE OCCURRENCE OF THE DISEASES OF THE NERVOUS SYSTEM WHICH ARE CONSIDERED SYPHILITIC IN ORIGIN?

And pointed out that certain diseases of the nervous system occur sequentially to syphilis with such frequency that they are rightfully looked upon as syphilitic in their origin. These diseases are tabes, general paralysis, syphilitic spinal paralysis, and such exudative conditions as cerebral thrombosis. After briefly reporting the history and treatment in nearly one hundred cases observed in hospital, dispensary, and private practice, the writer concluded as follows: (1) Exudative and degenerative diseases due to syphilis, are most liable to show themselves at the end of the third and beginning of the fourth decade of life. (2) Thorough and prolonged administration of antisyphilitic remedies during the activity of the virus, does not seem to materially prolong this time limit. (3) That active and prolonged antisyphilitic treatment does seem to prevent the development of such diseases as locomotor ataxia and general paresis. This is true of degenerative diseases, though treatment may, however, have some effect in preventing the exudative diseases of the nervous system, such as syphilis of the spinal cord, disease of the blood-vessels, etc. (4) Cases of tabes and general paresis in which syphilis is confessed, and in which treatment has been most desultory and incomplete, are not more liable to the early development or to the severe manifestations of either of these two diseases than those in which the treatment has been all it should be. (5) That the administration of antisyphilitic measures in the most approved way, does not fulfil the requirements of cure, and that syphilis is often an incurable disease.

DR. OSLER said that his experience was diametrically opposed to the views of Dr. Collins. The majority of severe cases of nervous disease occurring in syphilitics were in those who had either been badly treated or not treated at all. Early, thorough, systematic, and prolonged treatment will prevent the development of degenerative disease of the nervous system in later life.

HENRY R. STEDMAN, M.D., of Boston, read a paper upon

PROGNOSIS AND DURATION OF ATTACKS OF MENTAL DISEASE.

He called attention to the fact that a general misunderstanding occurs in the community as to the curability of insanity. It is much more curable than is supposed. General paresis should not be classified among the insanities. The character of the disease has changed in the last fifty years, and our views and classification have therefore changed.

DR. GRAY said that to speak of insanity as an entity was as if one were to speak of all disease as an entity, and then go back to the old Carlyle tables of mortality for the prognosis of coryza, pneumonia, tuberculosis, typhoid fever, and cholera, while to refer to the old statistics of Pliny Earle was like referring to the hospital re-

sults of thirty or forty years ago, for guidance in the treatment of the present day. If we are to accept the statistics of results of the insane asylums, we are justified in analyzing their record, and then we are startled to find that no new type of mental disease, no original pathological observation, no new departure in treatment, and not one text-book has ever come from an American asylum, despite the millions of dollars and thousands of patients they have had at their command.

C. E. RIGGS, M.D., of St. Paul, reported a case of

PARAPLEGIA FROM HEMORRHAGE INTO THE SPINAL CORD DUE TO PERNICIOUS ANEMIA, WITH AUTOPSY.

He presented a series of spinal-cord sections.

SECOND DAY—THURSDAY, JUNE 4TH.

BURT G. WILDER, M.D., of Ithaca, presented a paper entitled

THE DORSAL SAC, THE AULIX, AND THE DIENCEPHALIC FLEXURE.

It was illustrated by specimens and photographs.

THEODORE DILLER, M.D., of Pittsburg, then read a paper upon

PROGRESSIVE MUSCULAR ATROPHY OF SUDDEN ONSET.

He related the details of a case which came under his observation three years ago, and stated that the sudden onset of palsy, followed by atrophy and the absence of sensory phenomena, led him to diagnose the case as one of poliomyelitis adultorum. The beginning of the patient's trouble was in an ophthalmoplegia. After an absence of two years the man again came under his care, when the atrophy and loss of power in the muscles had markedly increased. The biceps, triceps, scapular, and ulnar groups had become involved, and the finer movements of the fingers were lost, as was also the power of supination. At this time the patient was unable to adjust or remove his clothing unaided. There was a marked decrease in the response, both to galvanism and faradism, in the paralyzed muscles. Dr. Diller considered the case could be fairly regarded one of progressive muscular atrophy, as the progressive feature was for two years the most important feature of the case. Ophthalmoplegia, as a symptom of progressive muscular atrophy, must be rare, for but scant references are made to it in literature. Strychnin had a very marked effect in staying the progress of the disease.

WILLIAM BROWNING, M.D., of Brooklyn, described a presumably hitherto unrecognized alteration in the skin, entitled

PITTING ABOUT THE HAIR CUPS, A TROPHIC CHANGE IN THE SKIN IN CERTAIN NERVOUS DISORDERS OF CENTRAL ORIGIN.

From some seven or eight years' observation of such cases, he was able to give the limits of its occurrence. So far, it has been seen only in progressive muscular atrophy, of spinal origin, or in cases complicated with atrophy, evidently likewise due to chronic precornual disease. In other troubles attended by atrophy, as infantile palsy, neuritis, pseudo-hypertrophy, etc., it has not been found. It is hoped that it may prove a useful help in differential diagnosis, especially between the forms due to peripheral and central disease. The change consists of an areola-like faint depression, frequently oval, in the direction of the lines in the skin, though it may be irregular or circular in form, about the exit of each hair. Usually the depression is a trifle paler than the surrounding skin, resembling, but not really being, a minute scar. It is not observed in specially hairy regions like the scalp, but only over the seat of muscular atrophy, notably on the leg and thigh, though also on the upper extremities. All these patients had reached or passed middle life.

F. X. DERCUM, M.D., and WM. G. SPILLER, M.D., of Philadelphia, presented a paper on

A CASE OF SYRINGOMYELIA.

Three years after a strain of the back the patient began to suffer from pains in the legs, a band-like pain about the lower part of the chest, weakness in the lower limbs, and a spastic gait. Complete paraplegia with contractures, more marked on the right side, wasting of the lower limbs, paralysis of the bladder and rectum developed later. Cutaneous sensibility was lost in the legs, and upon the trunk as high as the nipple on the right side and a little above the umbilicus on the left. The sense of temperature was absolutely lost over the right arm, the right shoulder, and the right side of the neck, and also upon the adjacent part of the right side of the trunk above the nipple line. There was some analgesia of the right arm. The right shoulder-joint began to swell, and from rupture of the capsular ligament, cellulitis, with redness and local heat, was produced, but with little or no pain. In extension, the humerus assumed the position of a subglenoid luxation. Death was due to exhaustion.

At the autopsy the capsule of the right shoulder-joint was found much thickened and roughened on the inner surface. The head of the humerus had disappeared, the bone having been eroded to some little distance below the surgical neck. A cystic tumor was found in the axilla, containing a friable fatty material. The surface of the glenoid cavity was much eroded, roughened, and porous; it was abnormally large, and extensive bony deposit had taken place along its edges. The coracoid process exhibited a thick and firm accretion around its entire edge. Sections were made from the level of nearly every spinal root and from many spinal ganglia.

By the microscopic examination, degeneration of the crossed pyramidal tract was found as high as the substantia reticularis of the second cervical segment, and of the direct pyramidal as high as the motor decussation upon the right side, and for a short distance of the crossed pyramidal upon the left.

Degeneration of the direct cerebellar tracts and of the tracts of Gowers was traced as far as the inferior peduncles of the cerebellum. Intense pachymeningitis was noticed from the second lumbar segment to the exit of the third dorsal roots. The arthropathy of the right shoulder was not due to any special changes in the cord or spinal ganglia. The posterior roots were not affected, even where the pachymeningitis was most intense; the anterior

at one part of the dorsal cord were degenerated. In the entire cervical region, as high as the second cervical segment, the cavity was limited to the right posterior horn.

The gliosis extended from the extreme end of the conus terminalis to the second cervical segment. The microscopic examination explained satisfactorily the symptoms observed in life.

JAMES HENDRIC LLOYD, M.D., and JOSEPH SAILER, M.D., of Philadelphia, presented a paper on

RAPIDLY FATAL CEREBRITIS RESEMBLING CEREBRO-SPINAL MENINGITIS.

Fulminating cases of the infectious diseases, such as smallpox, scarlatina, measles, typhoid fever, and spotted fever, occur, in which the diagnosis is exceedingly obscure and the disease is usually quickly fatal. These cases, as a rule, have their most marked symptoms in the nervous system. There is a delirium passing into coma, with depressed cardiac and respiratory centers, high fever, and often a purpuric or hemorrhagic eruption, not always characteristic. These cases demand especially, (1) the determination of the exact effects upon the nervous system and (2) the determination of the microbe or toxic agent at work in any given case. The writers could only attempt the former study, as the paper was not intended to deal with the bacteriology of the subject.

The patient was a man, aged twenty-four years, who was taken suddenly with a chill, followed by fever and intense cephalalgia and radialgia. The patient passed rapidly into a condition of delirium merging into coma. Third-nerve paralysis supervened, and on the third day a copious purpuric eruption appeared. This eruption presented ecchymosis, and on the hands lesions like erythema nodosum. Blood and pus were found in the urine, and vomiting of blood occurred before death. The patient died on the sixth day. The autopsy revealed disseminated local lesions in the cerebrum, mid-brain, pons, and post-oblongata, some migrated leucocytes in the perivascular spaces, little involvement of the membrane, and a diffused nephritis. From extensive microscopic research the writers were able to report a disseminated local cerebritis. The infection had invaded the brain by way of the connective-tissue structures, blood-vessels, etc., and the nerve-tissues proper were invaded secondarily. From the clinical standpoint the case probably comes under the head of "spotted fever."

DR. OSLER said he should like to have heard more in regard to the condition of the kidneys in the case reported. The diagnosis of cerebritis and encephalitis can be readily made between cases of infectious fever and the former. Unless the basal meninges are involved, we cannot make a positive diagnosis of meningitis, as all these symptoms, such as retraction of the head and clonic contractions of the muscles, may be present in pneumonia, and yet nothing is found at the autopsy.

L. A. DUHRING, M.D., of Philadelphia, presented a case of

NEUROPATHIC DERMATITIS.

The patient had been under his observation for six years.

WHARTON SINKLER, M.D., of Philadelphia, read a paper by S. WEIR MITCHELL, M.D., on

THE EFFECTS OF THE FLUID EXTRACT OF ANHELONIUM LEWINII (THE MESCAL BUTTON).

It recited the personal experience of Dr. Mitchell as to the exhilarating effects, and the production of various visual hallucinations, etc., after the ingestion of a certain quantity of the drug.

WHARTON SINKLER, M.D., of Philadelphia, read a paper on

UNCERTAINTIES OF CEREBRAL LOCALIZATION.

CHARLES K. MILLS, M.D., and WM. G. SPILLER, M.D., of Philadelphia, read a paper on

A CASE OF CEREBRAL ABSCESS SITUATED AT THE POSTERIOR PART OF THE EXTERNAL CAPSULE.

The patient had never had earache, but had suffered during the summer of 1895 from severe headache. On December 20, 1895, he became unconscious and had three general convulsions which resembled those of epilepsy. It was noticed that he was partially paralyzed on the right side and that he could not talk properly. His condition later improved very much. On January 29, 1896, he had another attack of partial unconsciousness, without convulsions, but with aphasia and decided paralysis. On admission to the hospital he was in a condition of stupor; he did not speak when addressed, and had almost total right-sided paralysis, incontinence of urine and feces, and entire loss of pain- and touch-sense over the paralyzed side. He was found to have right homonymous hemianopsia and double papillitis, most marked in the left eye. Death occurred February 26, 1896. There was no evidence at any time of middle-ear disease. At the autopsy an abscess was found in the left hemisphere, just above the level of the callosum. Both tympanic membranes were normal. Microscopic examination of the pus from the cerebral abscess revealed only the ordinary *Staphylococcus pyogenes aureus*.

The occurrence of epileptiform convulsions at the time of the first attack of unconsciousness, probably due to irritation of the motor fibers within the internal capsule, is worthy of note as an instance of the difficulty in diagnosticating cortical lesions. It is not known in what portion of the body these convulsions began. The diagnosis was made of some morbid process located at the posterior part of the internal capsule, involving the optic radiations and causing pressure. The abscess occupied the posterior part of the external capsule, a portion of the lenticular nucleus, and extended downward into the subthalamic region, but to all appearances had not cut the fibers of the optic radiations nor those of the internal capsule. The loss of function in these tracts was probably due to pressure. The white matter of the first temporal gyrus was almost entirely destroyed, and fibers from the upper anterior part of the second temporal were also cut. As the cavity was very near the periphery of the first temporal convolution, it would not have been difficult for the surgeon to have emptied it. Hearing was probably not seriously affected, although word-deafness appeared to be

present. In view of the frequency of cerebral abscess after suppurative processes in the lungs, it may be added that merely spots of catarrhal pneumonia were found in both lungs at the autopsy. No degeneration was noticed anywhere in the motor tract. At all parts a good half-inch of sound tissue existed at the posterior part of the internal capsule in the area corresponding to the optic radiations and the tract of Turck. It has been claimed by Dejerine that fibers arise in the temporal lobe (especially in the second and third convolutions) pass inward below the putamen, join the posterior part of the internal capsule in the subthalamic region and then form approximately the external fifth of the cerebral peduncle. No fibers from the occipital lobe are found in this lateral bundle of the crus. Dejerine has found this tract of Turck degenerated in six cases of lesions involving the middle and inferior part of the temporal lobe. In the case reported the fibers from the first temporal gyrus were almost entirely destroyed as well as those from the upper anterior part of the second temporal convolution, and as no degeneration was found within the lateral bundle of the peduncle by the method of Marchi sixty-eight days after the first attack and twenty-eight days after the second, certainly a period sufficiently long for this method. The authors consider that the case demonstrates the fact that no fibers from the first temporal and the upper anterior part of the second temporal gyrus, including a portion of the upper middle of this gyrus, enter the fasciculus of Turck. This does not render impossible or improbable the origin of such fibers in the lower anterior and the whole of the posterior part of the second temporal and in the whole of the third temporal gyrus. The fibers which enter the first temporal gyrus are probably connected with the sense of hearing, and, being sensory, probably do not degenerate downward, which accounts for the absence of secondary degeneration in the peduncle.

B. SACHS, M.D., and A. G. GERSTER, M.D., of New York, read a paper on

THE SURGICAL TREATMENT OF FOCAL EPILEPSY; A CRITICAL ANALYSIS OF THE RESULT IN NINETEEN CASES.

The authors' views and experiences are summed up in the following conclusions: (1) That surgical interference is advisable in those cases of partial epilepsy in which not more than one, or at the utmost, two years have elapsed since the traumatic injury or beginning of the disease which has given rise to the convulsive seizures. (2) In case of depression or other injury of the skull, surgical interference is warranted, even though a number of years have elapsed. But the prospect of recovery is brighter the shorter the period of time since the injury. (3) Simple trephining may prove sufficient for a number of cases, and particularly in those cases in which there is an injury to the skull or in which a cystic condition is the main cause of the epilepsy. (4) Excision of cortical tissue is advisable if epilepsy has lasted but a short time and if the symptoms point to a strictly circumscribed focus of disease. (5) Since such cortical lesions are often of a microscopical character, excision should be practised even if the tissue appears to be perfectly normal at the time of operation, but the greatest care should be exercised in order to make sure that the proper area is removed. (6) Surgical interference for the cure of epilepsy associated with infantile cerebral palsies may be attempted, particularly if too long an interval has not elapsed since the beginning of the palsy. (7) In cases of epilepsy of long standing, in which there is, in all probability, a widespread degeneration of the associated fibers, every surgical procedure is absolutely useless.

JOSEPH COLLINS, M.D., and A. WIENER, M.D., of New York, presented

A CONTRIBUTION TO THE PATHOLOGY OF EPILEPSY AND A RÉSUMÉ OF THE UTILITY OF OPERATION IN EPILEPSY.

This was a report of two cases in which a portion of the cortex was excised. The first case was that of a young man, twenty years of age, with the usual symptoms of focal epilepsy, the patient having had but three attacks. The cortical area for the right hand was cut out. Microscopical examination of the tissue showed chronic meningo-encephalitis, obliterative changes in the blood-vessels, changes in the ganglion cells of a degenerative character, and the formation of neuroglia tissue in the softened area. The patient was operated upon a year ago, and has since been free from epileptic attacks. The second case was that of a married woman, thirty years of age, who had epilepsy for six years of a focal character at first, which later became general. A similar operation was performed, and the cortex showed unmistakable pathological changes.

W. W. KEENE, M.D., of Philadelphia, and H. M. THOMAS, M.D., of Baltimore, reported a

CASE OF A LARGE TUMOR REMOVED FROM THE BRAIN WITH WIDE OPENING OF THE LATERAL VENTRICLE.

The patient, a young man of nineteen, with an excellent family and personal history, and no history of accident, in December, 1895, had an attack of intense headache and vomiting, but without optic neuritis. The latter symptom followed in the middle of January, with later blindness in right eye, slight vision remaining in the left; slight protrusion of left eyeball, pupils equal and normal, smell, hearing and taste unaffected. Paresis of the lower right face, sensation and the muscles of mastication unaffected, no muscular weakness in either the arms or legs, but there was a good deal of muscular restlessness of the right hand, persisting even during sleep. Reflexes present. Mental condition poor. He was dull and apathetic and sometimes slightly wandering mentally. After the early headache and vomiting neither of these was a marked feature. There was slight aphasia. Drs. Osler and Starr saw the patient with Dr. Thomas, and the conclusion was reached that it was a tumor in the left frontal lobe, most likely at the base of the second frontal convolution and probably subcortical. On May 10 Dr. Keene operated. The tumor presented through a rupture of the cortex at the base of the second frontal convolution as had been diagnosticated. The tumor was easily scooped out by the fingers. The lateral ventricle

was then seen to be widely open. After the operation there was no increase of the paralysis. In two weeks the patient had entirely recovered. The tumor was 7.5 cm. long, 5.5 cm. broad, and 4 cm. deep, and weighed two and a half ounces. It was a hard non-infiltrating sarcoma.

DR. A. G. GERSTER, of New York, confined his remarks principally to craniotomy in reference to cases of epilepsy. He spoke of the dangers in the use of the trephine and chisel, and recommended the bone-flap operation as introduced by Krause and performed by aid of the chisel and rongeur. He considered all of these methods unsatisfactory and too slow. He exhibited the electrical saw by Krause.

The greatest danger in cranial operations is due to hemorrhage on account of the prolonged time of the operation. Therefore, any apparatus is desirable that will enable the surgeon to work with rapidity and safety. He presented an American apparatus based on the principles of the dental drill, and said he had used the instrument with satisfaction in four cases.

DR. M. A. STARR had seen twenty-four cases operated upon but none were cured. He has never recommended, and will not recommend, operation in idiopathic epilepsy. He has always had the advantage of a skilful operator. These operations should only be done by surgeons who have special experience in this line of surgery, and not by the general surgeon. The exsection of cysts is very unsatisfactory as death on the table has often followed. He had seen cases operated on very early in infantile epilepsy, due to meningeal hemorrhage, without favorable result. When brain tissue, either scar tissue, or normal tissue, has been excised, the attacks have also recurred. Of eleven cases of brain abscess operated upon, three recovered. All of these were seen at the various hospitals, and were usually subsequent to ear disease. He could not agree with Macewen's view as to the simplicity of diagnosis of cerebral abscess. He thought the day of trephining was over. The last operation witnessed was done in 14½ minutes by chisels and gouges.

DR. W. W. KEENE spoke at length on the report of the case presented conjointly by him and Dr. Thomas, and considered the prognosis favorable. The removal of large tumors seems to be less dangerous to life than small ones, as in the search for the latter we are likely to damage the brain extensively. It is only within the last ten years that cranial surgery really began. His experience had been moderately large. He agreed with Dr. Starr as he (Dr. Keene) had not seen a single case of epilepsy cured by operation. He would be unwilling to accept even two years, but thought three years preferable as the limit for disappearance of attacks after operation. He had, however, seen considerable amelioration and, therefore, thought it worth while to operate in certain cases. He would not operate in cases of general idiopathic epilepsy. The sooner the operation is done after the injury or the beginning of epilepsy the more favorable the prognosis. After epilepsy had existed five or six years, he would hesitate in operating. He concluded that we must have twenty years of experience in cerebral surgery before this matter can be satisfactorily settled.

DR. J. H. LLOYD presented a patient with right hemiplegia and contracture, unilateral sweating and flushing of the face, and dilation of the pupil, and looked upon the latter symptoms as due to an irritative lesion of the thalamus.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL, DEPARTMENT, U. S. ARMY, FROM AUGUST 25, 1896, TO AUGUST 31, 1896.

Major Henry S. Turrill, Surgeon, upon being relieved from duty at Fort Riley, Kan., is ordered to Willets Point, N. Y., for duty, relieving Major Egon A. Koerper, Surgeon.

Major Koerper, upon being thus relieved, is ordered to Fort Crook, Neb., for duty.

First Lieutenant Frederick P. Reynolds, Assistant Surgeon, is relieved from duty at Fort Clark, Tex., and ordered to Fort McIntosh, Tex., for duty, relieving First Lieutenant Robert S. Woodson, Assistant Surgeon.

Lieutenant Woodson, on being thus relieved, is ordered to Jackson Barracks, La., for duty at that station, relieving Captain Junius L. Powell, Assistant Surgeon.

Captain Powell, on being thus relieved, will report to the president of the examining board appointed to meet at the office of the Surgeon General of the Army, for examination for promotion, and upon conclusion of examination, is ordered to Fort Riley, Kan., for duty, relieving Major Henry S. Turrill, Surgeon.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDED AUGUST 31, 1896.

BAILHACHE, P. H., Surgeon. Detailed to represent Service at meeting of American Public Health Association, August 24, 1896.

PURVIANCE, GEORGE, Surgeon. Relieved from duty at Philadelphia, Pa., and directed to proceed to St. Louis, Mo., and assume command of Service; August 25, 1896.

HAMILTON, J. B., Surgeon. When relieved from duty at Chicago, Ill., to proceed to San Francisco, Cal., and assume command of Service; August 25. 1896.

CASSAWAY, J. M., Surgeon. Granted leave of absence for thirty days from October 1, 1896; August 24, 1896.

GODFREY, JOHN, Surgeon. When relieved from duty at San Francisco, Cal., to proceed to Chicago, Ill., and assume command of Service; August 25, 1896.

WHEELER, W. A., Surgeon. When relieved from duty at Ellis Island, N. Y., to proceed to Cincinnati, Ohio, and assume command of Service; August 25, 1896.

BANKS, C. E., Surgeon. To proceed from Washington, D. C., to Boston, Mass., for temporary duty; August 21, 1896.

CARMICHAEL, D. A., Passed Assistant Surgeon. Granted leave of absence for thirty days from September 5, 1896; August 17, 1896.

WASDIN, EUGENE, Passed Assistant Surgeon. Granted leave of absence for five days; August 25, 1896.

BROOKS, S. D., Passed Assistant Surgeon. Directed to rejoin station at St. Louis, Mo., and when relieved from duty at that place to proceed to Port Townsend, Wash., and assume command of service; August 25, 1896.

WHITE, J. H., Passed Assistant Surgeon. Relieved from special duty at Key West, Fla , and directed to rejoin station at New York; August 24, 1896. Detailed for duty in connection with Immigration Service at Ellis Island, N. Y.; August 25, 1896.

CARRINGTON, P. M., Passed Assistant Surgeon. To proceed to Chicago, Ill., and assume temporary command of Service; August 25, 1896.

KINYOUN, J. J., Passed Assistant Surgeon. Detailed to represent Service at meeting of American Public Health Association; August 24, 1896.

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ORIGINAL ARTICLES.

THE DISEASES OF THE SKIN, OBSERVED IN A GENERAL PRACTICE OF TWENTY-FIVE YEARS, AND THEIR TREATMENT.[1]

BY CHARLES E. LOCKWOOD, M.D.,
OF NEW YORK.

ECZEMA is by far the most common of all diseases of the skin encountered in this country, and the statistics of the American Dermatological Association for five years ending in 1884, according to Van Harlingen, showed that out of 58,617 cases of skin disease occurring in all parts of the United States and Canada, 18,525, or nearly thirty-two per cent., were cases of eczema.

Eczema may be acute, subacute, or chronic, according to the rapidity of its progress and accompanying constitutional disturbance. I have met with acute eczema, accompanied with fever and constitutional disturbance, only once or twice.

The following case of infantile eczema was observed by me in March, 1886:

M., age three months, nourished on the breast by a wet-nurse, developed a general subacute eczema of the face, body, arms, and legs, probably due to indigestion. The following treatment was employed March 10, 1886: General baths were interdicted; skin was sponged with bay rum one part, water four parts; no flannel underwear allowed next to the skin. To the eruption an application of ol. rusci ʒ j, cold cream ℥ jss, was made twice a day with tip of finger, and on raw places, after applying the ointment, a solution of flexible collodion ℥ j in sulphuric ether ℥ ss was applied. Internally, a pinch of bicarbonate of soda was given three times a day, and every five days a powder of one grain of calomel and one grain of sodæ bicarb. March 20th, condition of face and body was much improved. I ordered a half-teaspoonful of lime-water, diluted with water, three times a day, and locally, the following powder to be dusted on the eruption, which was not so red or scaly:

℞ Pulv. Zinc Oxid. . . . . ℥ ss
Pulv. Amyli . . . . . ℥ j
Pulv. Camphor . . . . . ʒ ss

For itching paint on the skin:

℞ Tr. Camphor
Tr. Benzoin Co. aa . . . ℥ j

March 23d, face and head were nearly clear of the eruption, although some remained on the arms and legs. Child nursed regularly every four hours. The same treatment was continued, and the skin was sponged with Listerine and water, and a mixture of rhubarb and soda given two or three times a day.

April 22, 1886, the eruption had entirely disappeared.

This case illustrates well the marked benefit of soothing and non-irritating remedies when locally applied to the tender and sensitive skin of an infant.

In eczema of the hands and fingers, I have found rubber finger-covers and gloves useful as a protective applied over proper local dressings. The two following cases will illustrate this class:

T. C., laborer, age thirty-four years, consulted me in March, 1893, suffering from eczema of the back of the right hand, which extended from the knuckles to the wrist and over the back of the hand from one side to the other. The whole surface was red and swollen and raw-looking, and gave exit to a most offensive discharge. The patient was anemic in appearance and suffering from constipation. His mother had been treated by me for eczema of the leg, some years before. Considering this to be a case of chronic eczema, I prescribed Fowler's solution of arsenic, beginning with two-drop doses three times a day after meals; pil. Blaud, five grains after each meal; one-fortieth of a grain of podophyllin three times a day, and, as a local application, ungt. hydrarg. ammoniat. ℥ j, tincture benzoin co. five minims. The dose of Fowler's solution was gradually increased until, on April 11, 1893, he was taking seven drops, and the raw surface on the back of the hand was almost entirely healed over and covered with healthy skin. I next prescribed pil. podophyllum (Squibb), one every third night, until five should be taken, and as a local stimulant, ol. cadini ʒ j, ungt. hydrarg. ammoniat ʒ vij.

June 2, 1893, the patient had increased the dose of Fowler's solution to nine drops after meals. He suffered from looseness of the bowels whenever the dose of arsenic was increased, but this passed away in twenty-four hours when the dose was decreased. Continuing the tonic treatment, I prescribed Flint's tablets, saline and ferric tonic, two after meals.

June 13, 1893, he was suffering from diarrhea, and he had decreased the dose of arsenic from ten drops to six drops three times a day. The hand was almost entirely well, there being only a little redness on the wrist. I ordered the arsenic stopped and prescribed succus alterans, one teaspoonful three times a day. I did not see the

[1] Read at the twelfth annual meeting of the Fifth District Branch of the New York State Medical Association, held in Brooklyn on May 26, 1896.

patient again, but one year afterward his mother called on me and informed me that he recovered completely and had had no further recurrence of the trouble.

This case illustrates the efficacy of arsenic in certain cases of eczema, combined with iron—liver stimulation—and that empirical class of remedies called alteratives, among which I include succus alterans, a combination of stillingia, sarsaparilla, phytolacca, lappa, and xanthoxylum.

H. R., female, aged forty-seven, born in Ireland, single, occupation a cook, consulted me in October, 1889, for eczema of three fingers of the right hand, with which she had suffered for four months. Her family history was good, and she had always enjoyed good health. I was unable to obtain any evidence of a rheumatic or strumous diathesis, or liver, stomach, kidney, or uterine trouble. She was somewhat anemic, and I prescribed as a general tonic:

℞ Tr. Ferri Muriat . . . ʒ ij
Liq. Potass. Arsenit . . min. xlviii
Aquæ . . . . . ℥ iij
One teaspoonful in one-third tumbler of water after meals.

and as a local application:

℞ Hydrarg. Chlorid Metis . . . grs. x
Ungt. Tinc. Oxid. } aa . . . ℥ ss
Vaselin }
Apply to the fingers on soft linen and cover with a a rubber glove or rubber finger-covers.

October 31, 1889, the fingers were better; dry, red, and scaly. The amount of calomel in the ointment was increased to twenty grains, and the dose of Fowler's solution of arsenict of our drops, after which the affection was cured.

Eczema aurium, or eczema of the external auditory canal, I have met with only twice; and as this form of the disease sometimes presents some difficulty in the way of diagnosis and treatment, I shall present the history of one case. In both of these cases there was a family history of gout and rheumatism, and one suffered from gouty inflammation of the feet and toes.

W. R., white, born in New York, age thirty-two, weight 150 pounds, occupation mechanical engineer, consulted me in November, 1895, and gave the following history: Three or four years ago, while sitting in the car near an open window, he noticed an itching and ringing in the right ear. He visited an ear dispensary and was told he had inflammation of the ear, and was given powders. He then consulted a physician, who told him to wash the ear with warm water. When I saw him, the external auditory meati and canals of both ears were almost occluded by swollen tissues and coated with dry and moist scales, and he complained of ringing in the ears and a very disagreeable feeling in the external auditory canals. In order to clean out the canals so as to be able to make a positive diagnosis, I first dropped in both ears "Ozonol," a solution of ozone in oil, to soften and loosen the scales, and then, with a dropper, "Pyrozone," a three per cent. solution of dioxid of hydrogen, after which I syringed the ears with warm water, to which were added bicarbonate of soda and glycerin. After cleansing the ears as thoroughly as possible, I was still unable to see the drum, and gave him the following prescription to drop in the ears:

℞ Acid Boric . . . . . grs. x
Cocain Muriat . . . . . grs. iv
Alcohol }
Glycerin } aa . . . . ʒ jss
Rose-water }
Sig.—Drop five drops in the ears twice daily.

November 13, 1895, patient's condition was so much improved that I was able to see both drums. I painted over the surface affected a solution of nitrate of silver, two grains to the ounce, and closed the canals with a small piece of cotton, loosely inserted, as a matter of protection from the air. I prescribed ol. rusci, eight minims, to one ounce of vaselin, to be painted in the ears daily after syringing them with a solution of boric acid, two teaspoonfuls to a tumbler of warm water. In view of the rheumatic history in the family, I ordered five grains of salicylate of soda to be taken three times a day, two hours after meals, Poland water, as a drink, to be used freely, and the taking of red meats only once during the day, with the result that recovery was thereafter uninterrupted.

I have met with one case of eczema capitis, the history of which I gave in a paper read before the New York State Medical Society in February, 1895. In this instance the eruption had existed, off and on, for four years, and the patient gave a history of having suffered from rheumatism during the same period, the rheumatism disappearing after the breaking out of the eruption. The treatment, which consisted in the administration of salicylate of soda in ten-grain doses three times a day, with half a teaspoonful of bicarbonate of soda in carbonic acid water, twice a day, and the application of black wash and a stimulating ointment locally, and subsequently the administration of Fowler's Solution of arsenic in two-drop doses with wine of iron, and one-fortieth of a grain of podophyllin three times a day for four or five days at a time, resulted in a complete cure.

In the following case of chronic eczema of the forearms and legs, the patient came under my care November 12, 1890, and was discharged cured May 12, 1891:

Miss K., age thirty-one, had always enjoyed good health, with the exception that for three years she had had an eczematous eruption on the palmar aspect of the right forearm. It disap-

peared one summer and came back in the fall. A general examination showed an anemic murmur over the large vessels in the neck, and she complained of having suffered recently from neuralgia of the face and flatulence after eating. She was ordered to wash the arm with tar soap nightly and to take Fowler's Solution of arsenic in two-drop doses after meals; afterward the Fowler's Solution was given up to eight-drop doses after meals, with the result that she complained of sickness at the stomach, and the eruption was no better. The eruption was then painted with tincture of iodin to remove the epidermis, and the following ointment applied locally: Ungt. hydrarg. ammoniat. ʒ j, ungt. zinc oxid ℥ j. Iron in the form of Blaud's pills, five grains each, was prescribed three times a day after meals, to be gradually increased to three pills after meals. After two months' treatment the eruption was hardly to be seen. Adding a local application of green soap and stimulating ointments for a month, on April 13, 1891, eczematous spots appeared on the right and left forearms and right leg, and the anemic murmur in the neck had disappeared. I prescribed succus alterans, one teaspoonful after meals, and directed her to wash the eruption every night with ichthyol soap and apply an ointment of ammoniate of mercury. April 23, 1891, the eruption was better, and the dose of succus alterans was increased to two teaspoonfuls after meals. The local treatment as before. May 12, 1891, the eruption was entirely gone. The patient complained of pain during the evening after supper, at times, and says she wakes up in the night with pain and vomiting, for which I prescribed a powder of bismuth subnitrate, sodæ bicarb., pepsin, each ʒ ij, pulv. zingiber ʒ j, a half teaspoonful in water after meals, with good effect.

This case illustrates the importance of our appreciation of gastric disorder and anemia as factors in the production of eczema, and the inefficacy of arsenic in such cases, except in very small doses combined with iron.

In varicose eczema I have always secured good results by combining careful attention to the local support of the dilated veins, with proper general and local treatment. Eczema of the face, with abrasion of the mucous membrane of the mouth, I have met with in a patient who gave a history of syphilis contracted twenty-five years before, and a gouty family diathesis, which yielded to the local application of an ointment of calomel, ʒ j to the ounce, and the internal administration of the mixed treatment, combined with remedies suited to the gouty diathesis.

Eczema in the neighborhood of the lips, with cracks and fissures of the skin and mucous membrane at the corners of the mouth, I have met with once in a strumous subject. These cases are peculiarly rebellious to treatment, especially in cold weather. The treatment adopted was the internal administration of cod-liver oil and the syrup of the iodid of iron, and the local application of the following ointment: ol. rusci, eight minims; vaselin, one ounce, resulting in recovery. In another case, if I should find the fissures at the corners of the mouth slow in healing, I should try the application of

℞ Flexible Collodion . . . . ℥ j
Sulphuric Ether . . . . ℥ ss

painted over the fissures after the application of the ointment.

As soothing applications in the acute stage of eczema, I can recommend the calamin lotion:

℞ Zinc Oxid . . . . . ℥ ss
Pulv. Calamin Præp. . . . ʒ iv
Glycerin . . . . . ℥ j
Liq. Calcis . . . . . ℥ vij
Sig.—Mop on skin or bind on with cheese-cloth.

or,

℞ Tr. Opii Liq. Plumbi Subacetat . ʒ ijss
Aquæ Rosæ . . . . . ℥ iv

As a soothing powder,

℞ Pulv. Zinc Oxid, Pulv. Amyli, Pulv. Lycopodium } aa . . . ℥ ½

As an astringent ointment,

℞ Acid Tannic . . . . . grs. v
Bismuth Subnitrat . . . . ʒ ss
Ungt. Aquæ Rosæ . . . ℥ j

As a stimulating ointment in the stage of hyperemia with infiltration,

℞ Picis Liquid . . . . . ʒ ss
Zinc Oxid. . . . . ʒ iij
Ungt. Aquæ Rosæ . . . . ℥ ij

Ichthyol has been highly recommended as a local application in acute and chronic eczema, but I have had no experience with it.

As a blood depurative, I can highly recommend a preparation suggested by Dr. H. G. Piffard, having relieved one case of eczema of the legs almost immediately by its use. The formula is as follows:

℞ Herb Violæ Tricoloris . . . ℥ j
Fol. Sennæ . . . . . ℥ ss
Aquæ Bullientis . . . . O ij

Let it stand until cool and then strain. Of this, the average dose is a tumblerful once or twice a day. It should be given, however, in quantity sufficient to produce four or five evacuations daily for two or three days, after which the dose may be diminished. The effects of active purgation with this infusion is in some cases of eczema, as Dr. Piffard says, very surprising.

Erythema is found in two varieties: *Local or Idiopathic* and *Symptomatic*, including the erythemata which occur in parts of other and general diseases.

In the former the disease is merely hyperemia, without much, if any, appreciable effusion into the cutis and cellular tissue; in the other there is more escape of serosity from the vessels. As an illustration of the second variety, I give the following history:

On February 17, 1896, I was asked to see a young girl, aged fifteen years, who had been suffering for two or three days from an alveolar abscess connected with the roots of the first lower molar tooth on the right side. The tooth had been removed, but she was still suffering considerable pain, due to the irritation and pressure of inflammatory products upon the sensitive ends of the branches of the fifth nerve. Her temperature, taken under the tongue, was 100⅘°; pulse 84, and she suffered from frequent urination, passing her urine every hour. Over her face, hands, arms, and about her waist, there was a marked erythema, which had come out around the glandular orifices and disappeared on pressure. This eruption caused considerable anxiety in the family, but as my diagnosis was erythema, I was able to reassure them. For the cleansing of the foul cavity from which the tooth had been removed, I prescribed a mouth-wash of carbolic acid, one dram to the pint of water, with the addition of a little glycerin, the application of a two-per-cent. solution of cocain on cotton (being careful to place only about four or five drops on the cotton, containing about one-tenth of a grain of cocain, and directing her not to swallow her saliva while cocain was in her mouth) to relieve pain, and the use of fifteen grains of citrate of potash and five minims of fluid extract of hyoscyamin dissolved in a teaspoonful of water and flavored with essence of lemon to relieve the frequency of urination. These measures relieved her distressing symptoms, but she subsequently was attacked with violent pain in the stomach, and nausea, which I relieved by a hypodermic injection of one-eighth of a grain of morphin. The erythema appeared February 17th and disappeared February 19th, with improvement of the other conditions.

Acne is one of the commonest skin diseases, according to the statistics of the American Dermatological Association. Its causes, active and predisposing, are local irritation, blood-states, reflected mischief, and puberty, at which time the circulation around the sebaceous glands incident to the growth of hair is particularly active and therefore particularly liable to derangement in anemia, scrofula, dyspepsia, constipation, uterine disease in females, and affections of the genital organs in the male.

Acne punctata, or comedo, I have found very rebellious to treatment, yet in some cases I have seen marked improvement follow the use of local remedies to promote removal of the sebaceous plugs and hyperemia, followed by lotions or ointments calculated to restore tone to the sluggish circulation, with internal remedies to remove dyspepsia, constipation, and liver inaction, improve the general tone and correct depraved conditions of the blood, as cod-liver oil and iodid of iron in scrofula, preparations of iron in anemia, and nerve-tonics, such as preparations of the hypophosphites with small doses of strychnia in irritable conditions of the nervous system due to disturbance of the balance of nutrition. The condition of the genito-urinary organs should be inquired into. The local applications which I have found most generally useful have been hot water and soap, followed by preparations of corrosive sublimate or sulphur in the form of lotions or ointments, as in the following:

℞ Ammoniæ Hydrochlo. . . . grs. xv
Hydrarg. Chlorid Corrosive . . grs. vj
Cochinillini . . . . . gr. ss
Aquæ Rosæ . . . . . ℥ iij
Sig.—Rub firmly on the skin night and morning.

℞ Hydrarg. Chlorid Corrosiv . . gr. jss
Pulv. Camphor . . . . . grs. x
Ungt. Aquæ Rosæ . . . ℥ j
Sig.—Rub on the skin night and morning.

℞ Sulphur Præcipitat. . . . ℥ i
Spts. Vini Recti . . . . ℥ j
Sig.—Rub on the skin with a piece of flannel night and morning.

Mrs. H. M., age twenty-seven years, married three years, pregnant three months, consulted me February 10, 1896, suffering from comedo or acne punctata affecting the sebaceous glands of the forehead, temples, and hairy scalp, accompanied with symptoms of indigestion and constipation and strumous enlargement of the glands of the neck. The following treatment was prescribed for the indigestion:

℞ Ess. Pepsin . . . . . ℥ iv
Acid Nitro Muriatic Dilut. }
Tr. Nucis Vom. } aa . . ℥ j
Bismuth Subnitrat. }
Sig.—Two teaspoonfuls in a quarter of a tumbler of water, before meals.

For the constipation, one tablet containing five minims of the fluid extract of cascara sagrada was given two or three times a day. A piece of gauze dipped in hot water and with some tincture of green soap was rubbed over the affected parts night and morning. Afterward the following lotion was applied to the forehead and temples:

℞ Sulphur Præcipitat. . . . grs. xlv
Boric Acid . . . . . grs. xv
Ether }
Cologne-water } aa . . . ℥ ij
Alcohol . . . . . ℥ iij

To the scalp I recommend the application of a five-per-cent. solution of resorcin in equal parts of alcohol and water, with one dram of glycerin

February 17, 1896, the face was much improved,

and the scalp still scaly. I prescribed cod-liver oil and Blancard's pills of iodid of iron.

March 7, 1896, the patient recovered.

Acne simplex I have met with very frequently in practice in neurotic subjects suffering from general loss of nerve-tone, indigestion, anemia, malnutrition, or reflex irritation from diseased or abnormal conditions of the sexual organs. I shall give the history of one case, in which three different diseases of the skin were illustrated:

C. P., white, age thirty-six years, lawyer, weight 160 pounds, neurotic temperament, consulted me in March, 1889, and gave the following history: Has never had any severe illness, was perfectly well up to three or four years ago, since which time he has suffered from a thick feeling, as he expresses it, in the head, and a full feeling in the stomach. He noticed his eyesight failing in 1888, and complains of defective eyesight at the present time.

I asked Dr. Mittendorf to examine his eyes, and he reported as follows:

His case is one of the greatest interest to me; it is one of retinal and choroidal congestion. I do not think it very serious at present, but another attack of this kind may lead to exudation into the vitreous humor, and detachment of the retina. If you see him, will you please look after his digestion?

An examination showed an eruption of acne on the chest and back, due probably to indigestion and malnutrition, depraved nerve-tone and reflex irritation. A careful examination of the urine showed crystals of oxalate of lime; no albumin; no sugar. He was ordered to take a powder of bismuth, soda, pepsin, and ginger after meals, and, as a liver-stimulant, the following every night for twenty days:

℞ Euonymin, Irisin, Leptandrin aa . . . . . gr. j
Fl. Ext. Ipecac . . . . . ¼
M.—Ft. one pill.

March 25, 1889, his condition was the same. I prescribed ten drops of nitro-muriatic acid dilute in one tablespoonful infusion gentian co., after meals.

April 1, 1889: No oxalate of lime was found in the urine. He had flashes of light before the eyes when he got up in the morning or went upstairs quickly. There were no new acne spots; very little indigestion. For constipation, I ordered Buckthorn cordial, a teaspoonful to a tablespoonful at bedtime, and after meals a preparation of cod-liver oil, pepsin, and quinin.

April 8, 1889, the acne was better, but there appeared an eruption of herpetic vesicles on both buttocks, for which I prescribed the local application of the following lotion:

℞ Listerine, Aromat. aa . . . . . ℥ ijss
Aquæ . . . . . ℥ j
M.

April 15, 1889, the herpes was better, the bowels were regular, and there was very little indigestion. To continue the building-up treatment, I ordered him to take one tablespoonful of Moller's cod-liver oil after meals with ten drops of Thompson's solution of phosphorus.

The condition of this patient was improving until, on June 10, 1889, he appeared with acne on the back and chest again, having eaten a supper of lobster and crabs. This disappeared under proper treatment directed to stomach, liver, and general nutrition, and I saw no more of him until February 26, 1892, when he appeared, suffering from indigestion, fulness of head after eating, buzzing in the ears and flashes of light before the eyes, and a red, itchy, burning, vesicular eruption on the forearms, shins, and toes, which I recognized as eczema. It yielded to treatment based on the principles of stimulation of the liver, correction of digestion, and administration of tonics, with local applications, first soothing and then stimulating, as adapted to the stages of the trouble.

In acute urticaria, it is necessary, before prescribing treatment, to decide whether the trouble is the result of local irritation, disordered stomach, or reflex irritation from some other organ. If due to some dietetic error or stomach disorder, I have always been able to secure a favorable result by the administration of four grains of calomel, followed in six hours by a bottle of citrate of magnesia, combined with the soothing effects of a warm bath containing from three to six ounces of bicarbonate of soda to thirty gallons of water, and, as an antipruritic, sponging the skin with vinegar and water dilute acetic acid, or the following:

℞ Acid Carbolic . . . . . ℥ iij
Glycerin . . . . . ℥ j
Aquæ . . . . . O j
M. Sig.—Apply to the skin with a soft sponge.

Colchicum with salines have been recommended in gouty cases; acetate of potash and tincture of digitalis when fever runs high, and emetics in cases due to dietetic errors.

In cases of chronic urticaria the condition of the mind and the nervous system in general, the functions of stomach, intestines, liver, and kidneys, diet and manner of eating, and blood states demand the closest attention.

In October, 1895, I was consulted by a lady about forty years of age, who complained of an eruption of red blotches, which began in July, 1895. It came and went, as she expressed it, and was attended with intolerable burning, tingling, and itching. She seemed to be in perfect health, but gave a history of having lived in Germany near Hamburg during the preceding summer, and of having partaken freely of the peculiarly Ger-

man articles of food. A careful general examination showed some mental depression, and I was able to detect an anemic murmur over the base of the heart. She gave a family history of a gouty diathesis, her father, brother, and six sisters all having suffered from that trouble. After the removal of all local sources of irritation, such as flannel underwear, the avoidance of cold draughts, and the regulation of the diet, the local use of antipruritics, such as carbolic acid and vinegar and water, she was put on two-teaspoonful doses of Gude's syrup peptomanganate of iron three times a day, after meals, which was continued for about two months, with the result of, at first, slow improvement, and finally perfect cure.

In another case of this character, with well-marked symptoms of stomach disorder, I was compelled to insist on an exclusive diet of peptonized milk in connection with remedies indicated for anemia, which was evident.

Pityriasis versicolor, or chromophytosis, produced by the growth of the fungus *Microsporon furfur* among the horny cells of the epidermis and characterized by the appearance of yellowish-brown spots upon the chest and abdomen, I have met with quite frequently. For the destruction of the parasite I have recommended the washing of the parts with yellow soap or tincture of green soap and the application of a lotion composed of four or six drams of hyposulphite of soda and six ounces of water, or the application of tincture of iodin, or washing the spots with undiluted sulphurous acid, continuing the use of the parasiticide for a few days after the disappearance of the disease. Frequent changing and disinfection of the clothes worn next to the skin, and tonics, with nourishing diet, are necessary, as the affection usually occurs in debilitated subjects.

Pediculosis pubis I have always treated successfully by lotions of corrosive sublimate. In the male I have used a solution of two grains of corrosive sublimate to one ounce of cologne-water, or one per cent. solution (about eight grains to the pint) in equal parts of alcohol and ether. In the female, where cologne or alcohol would produce too much irritation of the sensitive mucous membrane of the vagina, or where the parts around the anus are involved, I have used a solution of two grains to six ounces water, washing the parts with vinegar to loosen the nits, advising that the garments worn next to the skin should be frequently changed and disinfected, that the parasiticide should be used for a few days after the trouble has disappeared. Where the limbs are hairy, they also should be examined carefully, as the parasite often appears there after it has disappeared from the part where it was first discovered. I have also found the parasite among the hairs on the armpits. Care should be taken in prescribing local applications of corrosive sublimate to ascertain if there are any excoriations of the skin present which would allow too rapid absorption of the drug. In that case a very cleanly method recommended by Dr. Cantrell of Philadelphia would be worth trying: "It consists in applying lint saturated with chloroform over the part affected, and covering it with oiled silk; this kills the parasite, and applications of vinegar will remove the ova."

Herpes progenitalis occurs frequently in persons with long and redundant prepuce, involving unusual irritability of the parts. In some cases circumcision has seemed to be necessary to prevent the frequent recurrence of the disease, but I have generally been able to relieve most subjects by the insisting upon absolute cleanliness and the application of the following lotion, suggested by Dr. E. L. Keyes:

℞ Listerin, Vin Aromatic } aa . . . . ℥ijss
Aquæ . . . . . ℥j

M. Sig.—Apply between glans and prepuce on a piece of cheese-cloth, changing the dressing after each urination.

I have also succeeded in hardening the parts affected, after the cure of the affection, by advising frequent ablutions and painting the parts daily with a solution of tannin and glycerin, one dram of the former to one ounce of the latter. In these cases, the herpetic vesicles sometimes rupture, leaving ulcerated cavities surrounded by some induration, and these I have treated successfully by applications of thioform.

Pruritus or itching, general and local, is an affection which we meet with very frequently in practice, and is very annoying to both patient and practitioner. To the patient it is most distressing, and to the practitioner it presents a difficult problem, in many cases, for solution in determining its cause, when we note that it is an accompaniment of most skin diseases, except the skin manifestations in struma, syphilis, and the exanthemata, although I have the history of one case of syphilitic general eruption in which itching was a marked symptom.

Among the palliatives for itching, I have found carbolic acid in the proportion of one dram to the half pint of water, with a little glycerin, and perhaps half a dram of potassa fusa, a most efficient antipruritic.

In general pruritis in cases of jaundice due to functional or organic disease, I have prescribed

one-tenth of a grain of hydrochlorate of pilocarpin, three times a day, with good effect. Warm baths, alkaline baths, bran-water, and inunctions with oil I have used as soothing applications.

Chloasma has been applied somewhat loosely to all brownish or yellowish-brown discolorations of the skin larger than freckles. They occur as a concomitant of pregnancy or uterine disorder, and sometimes in neurasthenic conditions, and after proper investigation and treatment of such troubles I have sometimes succeeded in removing the spots, temporarily at least, by causing exfoliation of the epidermis by lotions of corrosive sublimate, five to ten grains to the ounce, applied two or three times a day until the epidermis loosens; this may then be rubbed off.

In the treatment of scabies or itch, I have found the ointment recommended by Dr. Tilbury Fox gives the best results:

℞	Sulphur	ʒ ss
	Ammonio Chlorid of Mercury	grs. iv
	Creosote	gtt. iv
	Oil of Camomile	gtt. x
	Adeps	ʒ j
	M.	

This is rubbed in night and morning for three days, especially to the interdigits and wrists; the same shirt is kept on until the third day, when it is changed and a warm bath given. The parasiticide must not be used for too long a time. I have also recommended the use of powdered sulphur in the bed of the patient at night.

Phtheiriasis capitis is often discovered when least expected, on persons whose vitality is below par and whose scalps are not in a clean and healthy condition. The three remedies which I have found efficient in the destruction of these parasites and ova are: Carbolic acid, fluid extract of staphisagria, and dilute acetic acid. The carbolic acid I have applied as an ointment of the strength of ten per cent., and have found it especially efficient in promoting healing of the excoriations produced by scratching. I have used, as recommended by Dr. Cantrell of Philadelphia, the following:

℞	Fl. Extract Staphisagria	ʒ j
	Acid Acetic Dilut	ʒ iij
	M.—Apply thoroughly to the scalp.	

To promote a healthy condition of the scalp afterward, I have found resorcin a good local application, used according to the following formula: Five per cent. solution of resorcin in equal parts of alcohol and water, to which one dram of glycerin may be added.

Experience has taught me to watch for herpes zoster in patients who complain of obscure pains in the chest or abdomen. The etiology of the disease is so obscure and doubtful that it is difficult to name any efficient internal remedy. Since reading the paper of Dr. James M. Winfield of Brooklyn, regarding the malarial origin of zoster, I have prescribed quinin. Among local applications, I have found a preparation of sulphate of morphin, five grains to one-half ounce of collodion, a good protective and anodyne. For the neuralgia, I have used a pill consisting of one-third of a grain of phosphid of zinc combined with one-sixth of a grain of extract of nux vomica, given at the commencement of the attack and repeated every three hours. When this fails, morphin may be used.

Tinea tonsurans, or ringworm of the scalp, I have met with only once, and treated by shaving the hair and applying chrysophanic acid, seven grains, to one ounce of chloroform. The chloroform solution was well pressed and dabbed into the affected places with a minute sponge. The places should be well washed every morning with hot water and soap, to remove any sebaceous matter or crusts, and the hair should be kept closely cut on them till the new hair appears, which is generally in from two to three months.

As the sweat-glands are lined with epithelial cells, a faulty condition of such cells may have something to do with the disordered secretion. At any rate, with these views, we are warranted in administering such medicines and advising such measures as improve the general nutrition and tone, and applying such local remedies as will diminish the hypersecretion. Among the local remedies for accomplishing this purpose I have found belladonna, in the form of the tincture or the liniment, useful. Among internal remedies, those which are calculated to improve the condition of the nervous system would seem to be indicated, such as iron, quinin, strychnin, arsenic, and the hypophosphites. Sulphuric acid and atropin I have used with temporary benefit.

Dermatitis exfoliativa I have met with only once, occurring on the palmar surfaces of the hands and fingers. The patient was a carpenter and had suffered considerably from rheumatism. This case was characterized by redness and extreme tenderness and sensitiveness of the palmar surfaces of the hands and fingers, with desquamation or exfoliation of the epidermis, leaving a red and sensitive surface. A cure was effected by immersing the hands in warm water, about as hot as could be borne, two or three times a day, and the internal administration of Fowler's solution of arsenic.

THE MANAGEMENT OF THE SENILE HEART.

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Under the questionable title of "senile heart" I desire to call attention to a most interesting form of cardiac disease occurring in persons beyond middle life, especially in the decades between forty and sixty. The term "senile heart" is a most unfortunate one, inasmuch as it is used in an indefinite way by many physicians and writers, to include all cardiac changes of a chronic character in old or even middle-aged people who look senile. In this paper the term "senile heart" will be used in its restricted sense, hence, not including on the one hand previously existing valvular disease, or on the other those pronounced cardiac changes due to general arterial fibrosis, atheroma, or renal disease.

In order to make more clear the morbid condition to which the term "senile heart" is herein applied, permit me to call your attention briefly to the more constant or normal changes occurring in the heart—the result of advancing age. Every healthy individual starts on life's journey with a balance to the credit of his heart—the extent varying in different individuals; this balance we designate as reserve compensatory force. Hence, we are not surprised, on examination, to find the heart showing evidence of slight hypertrophy beyond middle life. This enlargement would seem but the logical outcome of the increased labor forced upon the heart by changes in the arteries, capillaries, and extravascular tissues, the result of age. Bizot and Balfour believe this change to be universal in all old people. From clinical investigation I am convinced of the truthfulness of this statement in the vast majority of cases. This slight enlargement is of gradual growth, unaccompanied by symptoms, and hence should be looked upon as a conservative or beneficial change. As long as the heart muscle maintains its integrity, all goes well with the individual; but if from any cause the innervation or nutrition of the myocardium be seriously interfered with, thus unfavorably modifying the normal senile enlargement, evidence of myocardial weakness accompanied by dilatation of one or more of the cardiac cavities soon appears, leading to grave embarrassment of the heart and circulation. The essential lesion is then a weakened myocardium, accompanied sooner or later by dilatation—the result not of inflammatory or degenerative changes, but of disturbed innervation or defective nutrition, arising from the many causes operative during and after middle life. These causes are so numerous and varied in character as to preclude more than a brief reference to them in this paper.

Among the more frequent causes of disturbed innervation may be cited the abuse of alcohol, tobacco, tea, coffee, sexual excesses, business or domestic worry; in fact, any cause, physical or emotional, if sufficiently violent or prolonged, may interfere with the innervation of the heart as evidenced by an irregular or intermittent pulse. Among those causes tending to interfere more directly with the nutrition of the myocardium may be mentioned anemia, hydremia, gout, dyspepsia, etc. As clinicians, we are all familiar with the following group of symptoms, constituting a clinical picture met with frequently in the examination of persons beyond middle life. An active business man beyond middle life, of good habits, previously free from any evidence of cardiac disease, begins to suffer from breathlessness on the slightest extra exertion, and from precordial discomfort and distress at intervals. His pulse becomes slightly irregular in rate, rhythm, or force, perchance intermittent. Slight overwork or worry precipitates an attack of palpitation; he becomes painfully conscious of the presence of a heart; consults his medical attendant, who finds, on examination, the following signs: A weak, almost imperceptible cardiac impulse located in or near the left nipple line. On careful percussion, the deep cardiac dulness is found to be slightly increased. On auscultation the heart sounds early may be normal, later, the first sound becomes shorter and weaker, accompanied by a faint systolic murmur, audible at the apex and frequently over the pulmonary area, if the left auricle be enlarged. A slight accentuation of the aortic second sound being the rule after middle life, I have seldom observed that sharp accentuation of the aortic second sound described by Balfour, which he ascribed to dilatation of the ascending portion of the aorta, but have frequently observed a short, faint, systolic murmur over the aortic area, faintly transmitted along the vessel, due, I believe, in the majority of cases, to dilatation of the ascending portion of the vessel. This clinical picture is but the reflex of a weakened myocardium, accompanied by dilatation of one or more of the cardiac cavities, which condition, if not recognized and relieved by proper treatment, soon gives rise to grave changes in the heart. These changes become apparent in the enlarged percussion area and by the presence of murmurs over the several valvu-

lar areas, accompanied, or soon followed, by all the unpleasant symptoms of cardiac failure, soon ending in death.

For the purpose of treatment, we may divide the clinical course of the disease into two periods or stages. First, the period of progressive and often slow development of myocardial weakness, accompanied by breathlessness, precordial distress, irregular pulse, and occasional attacks of palpitation. Second, the period of advanced myocardial weakness, accompanied by marked symptoms of cardiac insufficiency, such as constant precordial distress, dyspnea, frequent attacks of palpitation, marked irregularity of pulse, tachycardia, bradycardia, angina, and later, all the symptoms of general venous engorgement, ending fatally if uncontrolled.

The first period requires principally hygienic, dietetic, and general tonic treatment—our efforts being directed toward making the cardiac muscle equal to its task and to maintaining its integrity. Each individual case should be carefully studied, an accurate diagnosis being the first essential to successful treatment. Having then a clear conception of the patient's condition, it should be carefully and frankly explained to him, unless there be special reason to the contrary, when it should be explained to a friend or relative. The patient must be made to understand why he is to follow instructions explicitly, and informed that if he transgresses, his sin will manifest itself in more frequent and severe attacks of precordial distress, dyspnea, palpitation, and, perchance, angina. Having secured the confidence of the patient, our first endeavor should be to discover and remove every possible cause of cardiac irritation and embarrassment. Our second endeavor should be to so regulate the diet, exercise, and habits of the individual as to bring the general nutrition, as well as that of the heart muscle, up to the highest possible point and maintain it. For this purpose, in addition to hygienic and dietetic measures, general tonic treatment, consisting, according to indications, of iron, strychnia, arsenic, and bone-marrow will be found necessary. The patient should be advised to eat and sleep regularly, using three meals daily, composed of nutritious food suited to the requirements of his special case—the midday meal always being the principal one—no solid food being allowed between meals—little or no fluid with meals. The lungs should be supplied with a liberal diet of oxygen, hence the sitting and sleeping apartments of these patients should be well ventilated—tent-life being the ideal one; they should be urged to sleep at least ten hours out of every twenty-four, with a midday rest in the recumbent position of at least one hour following the principal meal, in order to minimize the daily labor of the heart; the latter injunction should be rigidly followed the remainder of the patient's life. The question of exercise must be carefully considered in relation to each individual case and with special reference to the condition of the myocardium. However, in the large majority of cases of "senile heart" absolute rest in the recumbent posture will be found necessary for a time at least. The patient's habits should be carefully regulated—tobacco, alcohol, tea and coffee should be interdicted. They should be urged to lead a quiet, orderly, and temperate life, as free from worry and excitement as is compatible with our modern civilization. Our resources will be sorely taxed in our endeavor to regulate the habits of senile patients. Yet, it is attention to the little things of eating, drinking, and doing, which makes success possible in dealing with this condition. How futile to attempt to restore the dilated heart of the tobacco fiend, opium-eater or alcoholic unless he forswears the habit.

Unfortunately, these patients do not present themselves for treatment until marked weakening of the myocardium has occurred, indicating the second or advanced stage of the disease. We are then confronted with the difficult problem of medicating a weak and dilated heart in an individual having, by virtue of his age, suffered certain vascular as well as extravascular changes, causing increased intra-arterial and cardiac blood pressure. Hence the condition of the circulation as indicated by intra-arterial and cardiac pressure, becomes the key to successful treatment.

For the relief of the more or less constant high intra-arterial pressure, we rely largely on the iodids and nitrites. I have found the iodid of sodium in from three- to five-grain doses, repeated three times daily, of marked benefit in dilating the arterioles, thus reducing intra-arterial pressure, the iodids having a much more prolonged action than the nitrites, are to be preferred for internal administration. The digitalis group, consisting of digitalis, strophanthus, strychnia, caffein, spartein, etc., render most excellent service in giving tone to the weakened myocardium, when combined with vascular stimulants like the iodids and nitrites.

In the management of pronounced senile cardiac insufficiency, no method of treatment has proven so eminently satisfactory in my hands as

that of subcutaneous medication, assisted by rest, baths, saline cathartics, Swedish movements, and massage. During the past three years, it has been my pleasure to see many cases of advanced cardiac dilatation respond to strychnia, digitalin, nitroglycerin, etc., hypodermically administered, which would otherwise have died under any other treatment at my command. In order to secure the best possible results, strychnia, digitalin, and nitroglycerin, should be combined for a time, later, omitting the digitalin, or using it interruptedly, according to indications—in every case increasing the dose of strychnia until it produces muscular twitching, and there maintaining it. The smallest dose of nitroglycerin capable of producing the desired dilatation of arterioles should be the rule. It has been my custom to begin with the 1–40 of strychnia, used every six or eight hours, gradually increasing the dose until its characteristic muscular manifestations appear, always combining it with nitroglycerin, and adding digitalin as indicated. Subcutaneous medication is especially indicated in the aged, owing to their naturally feeble gastric absorption, but more especially in the management of cardiac dilatation, owing to the accompanying gastric catarrh resulting from venous engorgement. It is urged against the subcutaneous method of treatment, that it requires the presence and expense of a trained nurse; on the contrary, any intelligent person can be quickly trained to use the hypodermic syringe, thus enabling the physician to carry out the treatment at the patient's house without additional expense.

In suitable cases, saline baths of a suitable temperature are an efficient aid in freeing the periphal circulation, thus relieving venous engorgement and its attendant ills. I begin with a bath of ten minutes' duration, the bath to consist of forty gallons of water at a temperature of 100°, gradually lowered to 92°, holding in solution 4½ pounds of chlorid of sodium. This is repeated daily for some days, then less frequently, gradually increasing the amount of saline, as well as the duration of the bath, from day to day, until the patient remains in the bath at least thirty minutes. I have never observed any unpleasant effects; on the contrary, patients have expressed themselves as feeling relieved and refreshed. During the bath, the pulse becomes slower and fuller, the respiration slower and deeper, and the cardiac impulse stronger and more circumscribed, with apparent at least temporary decrease in the transverse cardiac dulness. Massage and Swedish movements, properly applied, are useful aids in improving the circulation—the latter in the form of movements of resistance being of especial advantage, owing to the feeble muscular movements and sedentary habits of senile patients. Saline cathartics cautiously employed are especially useful in relieving the more or less constant gouty condition present after middle life; later, they prove invaluable in removing dropsical accumulations.

We thus see that the clinical history of the "senile heart" is not the story of a few weeks, or even months, but often comprises the life history of the individual in respect to heredity, habits, etc. Consequently, in this struggle with mortality—for it should be constantly borne in mind that we are dealing with an incurable condition—we should endeavor by careful investigation to search out and remove every possible cause of cardiac irritation and embarrassment, our time and labor being richly rewarded by the knowledge that we can, in the majority of cases, add years of confort and usefulness to the individual's life.

In conclusion, I desire to emphasize first, the necessity, yea, the obligation for early and prompt recognition of the danger signals indicative of beginning senile cardiac insufficiency, believing that no practitioner is justified in ignoring or passing as unworthy of therapeutic attention, the breathlessness, precordial distress, and irregularity of pulse so often encountered after middle life; second, to urge especially upon the profession the more general use of the subcutaneous method of treating cardiac insufficiency.

SOME THOUGHTS ON THE ORIGIN AND SPREAD OF CONTAGIOUS DISEASE.[1]

By W. H. FAULDS, M.D.,
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Aside from aseptic and antiseptic surgery there is, perhaps, no subject in which, at present, the laity and medical profession are taking greater interest than the origin and spread of contagious and infectious diseases.

With the advent of antiseptic surgery came the germ-theory of disease, and the theory of contagion and infection through microörganisms, and in this way was developed a force which has revolutionized surgery, and set at naught almost every principle upon which the leaders in sanitary and medical science had for centuries based their teachings and investigations. That such a radical change in the fundamental principles of these great factors in the world of science should work a cor-

[1] Read before the Luzerne County Medical Society.

responding change in the means used for the prevention and spread of contagious diseases goes without saying, and that the laity, physicians, and sanitarians should be tardy in adapting themselves to the new order of things, is what might be expected. However, we believe the time has come when we, as physicians, ought to be preparing ourselves to measure up to the standard required by the new régime, and thus escape the censure which is sure to come from a confiding public, if we prove recreant to our trust. But in order that we may be successful, we must first have a clear conception of the principles which are to guide us in our efforts.

A moment's consideration of the subject teaches us that almost all the vital processes are based upon the principle of supply and waste, and that waste material or filth becomes a source of disease only when misappropriated or diverted from its proper channel. In other words, the waste matter of animal life, if not properly appropriated, furnishes a hotbed for the reproduction of microorganisms, which are now recognized as the chief factors in the production and spread of contagious diseases. The land and city refuse, swept into our rivers, furnishes pabulum to the finny tribe, and they in return supply the most delicious meats to the inhabitants of every clime. But not only does the refuse contribute to the maintenance of all animal life, but the lower order of animals are sacrificed that the higher may subsist.

It is also true that this higher order may become the easy prey of the microscopical world, being sometimes swept down upon by an army of these minute invaders, their onslaught being more deadly than that of the best disciplined soldiery armed with the most approved weapons of modern warfare. But besides being the avowed enemies of the human family, vulture-like, these infinitesimal wonders are ever on the alert, watching for the first symptoms of decay, always ready to assert their prerogative whenever a soil favorable to their development and propagation is spread out before them. Unlike the human family, that select the best in the line of animal and vegetable foods for their sustenance, these disease-producing organisms revel only in tissues of low vitality, caused either by temporary departure from health, or the incipient stages of the process of degeneration and decay.

So intimately associated are they with the higher forms of life that they are found everywhere, even occasionally in healthy tissue. "They exist in the air, the soil, the water, in our clothing, on the surface of our bodies, and on the mucous membrane of the intestines, and respiratory tracts." But as we have already intimated, it is chiefly in decaying organic substances that they find a soil most favorable to their propagation and development. It is this special affinity of bacteria for animal tissue that has given origin to all the contagious and infectious diseases. Thus in scarlatina, diphtheria, measles, smallpox, typhoid, whooping-cough, and a host of other affections, we find in each its peculiar disease germ, each having distinguished features as familiar to the bacteriologist as the different types and races of the human family.

The question is sometimes asked: "Where did the first case of contagious disease originate?" One answer to this question is, that until spontaneous generation is proven and life shown to be the result of physical forces, these microörganisms, capable of reproducing themselves, must rank with the higher orders of organic life, whose origin can only be traced to Him who, in the beginning, created all things. If the smallest germ of animal or vegetable life may be the product of physical forces, then all life, yours and mine included, may be the result of forces in nature, and we need no longer look to a Supreme Being to solve the mystery of the origin of life.

By assuming that the pathogenic germs had their origin with other forms of organic life, the question as to the origin of contagious diseases still remains unanswered, and the only explanation we have to offer is, that the first case of contagious disease was caused by the presence of virulent bacteria in human tissue of lowered vital resistance, and that the pathogenic bacteria were made such by cultivation in a favorable medium, furnished by the habits and environments of man at some period in the history of the human race. That the virulent bacteria were not, in their pristine state, capable of producing smallpox, diphtheria, scarlatina, cholera, and syphilis, seems reasonable from the fact that these diseases are spread only by contagion or infection from a previously existing case, and that these diseases can be clearly traced to the countries in which the primitive germs were first made pathogenic. Again, it would be hardly fair to assume that these countries were exceptions to the rest of the earth's surface in the matter of containing these germs, and that primitive man took up his abode in the only countries fruitful of diseased germs, and which have since given as a legacy to his posterity almost every pestilential disease to which human flesh is heir.

To me, then, a logical inference is, that bac-

teria are present with the other forms of organic life in all parts of the habitable globe, and that all that is required to make them pathogenic is the favorable conditions which developed cholera and other germs in the countries where they first made their appearance.

The argument then is, that the conditions favorable to arousing the microbe to a state of activity must exist before the disease can make its appearance. But the bacteria, once active, act in the presence of conditions that could not arouse the microbe from its dormant state. To illustrate: cholera, so far, has failed to gain a foothold in this country because the conditions here are not such as to arouse the dormant germ. However, the active bacillus from abroad, that has become virulent from repeated multiplication in a favorable soil, produces the disease here in its fatal form among the susceptible, just as it does in the older countries. The same, I believe, is true of scarlatina, smallpox, measles, and diphtheria. Diphtheria was known and described by Galen. Memorable epidemics existed in Rome as early as A.D. 856, but it was not until eight hundred years later that this disease made its appearance in Switzerland and Germany, a century later in Naples and in our own country.

So of scarlatina, although known as early as the first century of the Christian era, it was first described by an English physician in the sixteenth century, and extended to the western world through European shipping in 1735, to Iceland in 1827, and to Greenland in 1847, showing conclusively that this germ, like diphtheria, was fostered and brought to a state of virulency still unknown to us, by the people who, in a state of ignorance and religious lunacy, looked to their gods for relief, while they themselves were violating every principle of the laws of health. Again, smallpox was first mentioned by an Egyptian physician in the sixth century, and undoubtedly this germ owes its extreme vitality to the favorable conditions under which it was aroused into activity, and its virulence developed.

So we might mention other diseases which exist here, but from which we would never have suffered had they not been brought to us from these disease-breeding countries, because the conditions here have, so far, not been such as to arouse the dormant germ.

Prior to the discovery of Koch, there were many theories extant regarding the spread of contagious and infectious diseases, none of which, however, receive confirmation in more recent investigations. But now the generally accepted theories are those of this great leader in scientific thought. And as his investigations have shown that all contagious diseases are dependent upon the presence of a microörganism, capable of self-propagation, the theory that every case of contagious disease must have had its origin in a previous case, at once became tenable.

This theory, however, was advanced by medical writers prior to the investigation by Koch of the germ theory of disease. Macnamara, in his discussions on cholera, says: "No amount of overcrowding, no special condition of the soil, nor any circumstances with which we are acquainted has ever been known to originate Asiatic cholera *de novo* among men removed from its endemic influences, or unless the disease has been epidemic beyond the confines of India." Again, he says: "Every outbreak of the disease beyond the confines of British India may be traced back to Hindostan, through a continuous chain of human beings affected with their dejecta."

In 1881, Wilson of Philadelphia, said of typhoid fever: "Without doubt the fever-producing principle is an organic germ, a *contagium vivum*, and is invariably derived from a previous case of enteric fever."

Macnamara also states in his discussions that "the more explicit the examination, the clearer the fact appears that the disease (cholera), in the majority of cases, spreads from one human being to another by means of the cholera fomes finding its way into the drinking water, and thus into the intestines of other people."

"I by no means deny," said Pettenkoffer, "the transmissibility of cholera by means of man coming from an infected place. I consider man alone as the specific cause outside the influence of the infected locality; moreover, I consider him the propagator of cholera, when he comes from a place where the germ of the disease exists."

What is said of cholera, we believe, upon investigation, will prove true of scarlatina, diphtheria, smallpox, and tuberculosis. We have ample proof that these diseases had their origin in the Old World, and were in all probability spread only through human intercourse.

Diphtheria was first brought to the United States through European shipping, and made its first appearance in Boston in 1735. "Thence it extended westward over the British colonies, reaching the Hudson and New York in two years, and after a time leaped over the barrier of the river. It gradually disappeared, attracting no further attention, except as a historical fact, noted by Douglas, Bard, Colden, and others."

Scarlet fever also had its origin in the Old World, and in its spread has been subject to the same laws regarding human intercourse as the other diseases mentioned. Again, tuberculosis, although known to the inhabitants of every clime, undoubtedly spread like cholera, syphilis, and diphtheria, from the thickly populated centers of the Old World, and is spread only, directly or indirectly, from animal to animal, or from man to man. That up to a few years ago there were isolated spots on the earth's surface that its virus had not penetrated, is rendered possible by the statement of Gibon, in the *Annual* for 1890. He says: "According to Certes there are no pathogenic microbes to be found at Cape Horn. The Fuegians did not know anything about smallpox, measles, scarlet fever, or diphtheria, before the inroads of civilized nations. Prior to the visits of the missionaries even pulmonary phthisis was unknown, and tuberculosis only began to establish itself in that country since 1881." It is said of the North American Indian that, before the discovery of America by Europeans, he was entirely exempt from the pestilential diseases. He had, in his primitive state no ailments, so far as we can ascertain, except such as were incident to exposure and old age. The gold hunters are said to have introduced smallpox into Mexico, and the adventurers from the Old World brought with them the eruptive fevers and loathsome contagious diseases of vice and immorality.

A French writer is authority for the following statement: "A soldier returned home consumptive, after undergoing confinement in a Prussian military prison. Previous to his return no one in the village had for many years suffered from consumption. He expectorated freely, and it was observed that the fowls swallowed the expectorated matter. These fowls were given to a woman in the village who was in perfect health, and in the course of four months she consumed sixteen of them. She had no direct communication with the patient, but after a time became consumptive. One of the fowls was killed and tubercle was found in the liver and other organs."

Again, it is said of cholera that the germs cannot retain their virulency long outside of human tissue. Thus, Pollock found that after each invasion or epidemic the germs died out, and with each recurrence there was a new importation of germs. This would account for the disappearance of the disease in this country after the epidemics which have several times visited us. That this is true of diphtheria, scarlatina, and smallpox, remains to be proven, but would appear probable from what has been said of the first epidemic of diphtheria in this country. That the germs must have lost their disease-producing qualities appears from the fact that the inhabitants were free from the disease from 1735 to 1835, a period of about one century.

This disappearance of the disease germ, unless a fresh supply is received from human tissue, would seem to be in accordance with a law of the animal and microscopic world, that neither can exist long in the presence of the poisons of its own excretions. Thus we find in the overcrowding of human beings in jails, barracks, and camping grounds, unless protected, they soon die of diseases produced by their own emanations. So the bacteria cannot long survive in the poisons which result from their presence in large numbers.

If, then, every case of a contagious and infectious disease has its origin in a previous case, and is spread directly or indirectly through human intercourse, and the germs of this disease die unless reinforced from animal tissue, it is certainly fair to assume that if all the disease-producing organisms could be prevented from attacking animal tissue, it would not be long before the virulent germs would have to return to their primitive dormant state for want of nutritive pabulum, and then would the declaration of Pasteur be verified, "That it is within the power of man to cause the parasitical diseases to disappear from the world."

If the principles here laid down are accepted as a working hypothesis, the destruction of the virulent bacteria by isolation, quarantine, and disinfection, must form the basis of our efforts to prevent the spread of contagious and infectious diseases. But all medical writers are not in accord on this subject.

Pettenkoffer, who has given us an extended array of works on cholera, says: "Too much importance has been given to bacteria as an etiological factor in the spread of cholera, and the importance of local conditions has been overlooked." He tried to prove his position by taking into his system the cholera bacillus; the cholera bacilli were found in his stools for eight or nine days after ingestion, but his health was not seriously affected. He is also strongly opposed to quarantine, and says that the spread of the cholera germ is not to be prevented, either in India or outside of it, by isolation, quarantine, disinfection, etc. He further says: "Just as in spite of custom houses, goods are still smuggled over the frontiers, so the bacteria and viruses will be smuggled through all our barriers." He re-

gards the millions expended in hunting down the germs as wasted effort, which should be diverted to the work of making people and places immune. I have cited this authority more to show how easy it is for eminent men to give adverse views concerning precautionary measures which sanitarians of equal eminence, after a long struggle, have barely succeeded in establishing.

The importance of isolation has long been recognized. A century ago Naples fined and even imprisoned her physicians for failing to report to the authorities cases of tuberculosis, the result being a reduction in the mortality from this disease of ninety per cent.; and despite the fact that at a later period these measures were abandoned, under the impression that this disease was not contagious, recent experience argues that isolation affords the only practical solution of the question of how to prevent the spread of this most fatal of all maladies.

It is said of England, that within the past few years, through improved hygienic conditions and isolation of the tuberculous patients, the mortality has been reduced fifty per cent.

Philadelphia, during the past eight years, has reduced her mortality from phthisis twenty per cent. California, in view of the fact that it is rapidly becoming the great sanitarium for these unfortunates, is seriously considering the importance of the isolation of phthisical patients in order to prevent the spread of the disease.

I need not quote authority to convince you of the importance of this measure in the prevention and spread of diphtheria, scarlet fever, and the other contagious diseases.

A question of more practical importance is, what are we doing to prevent the spread of disease? Our answer is nothing compared to what ought to be done. I would not for a moment disparage the work of our State Board of Health, or the efforts of our local boards. They are probably doing all in their power, considering the means at their disposal, and the niggardly policy of our legislature by which they are handicapped. But I am convinced that nothing worthy of the effort will be accomplished until every person and animal threatened with, or sick of, a contagious disease can be isolated and thorough disinfection practised under the care and direction of a competent bacteriologist. If, as we have argued, a virulent disease germ is abroad and cannot be destroyed so long as it can find a favorable soil for propagation in human or animal tissue, anything short of complete isolation will be wasted effort.

So far we have said nothing of what is being done by inoculation to render persons immune, or prevent the spread of disease. If we were to judge of the value of this method of preventive treatment by the newspaper notoriety antitoxin has received, it would indeed be a great boon to humanity, but, as you know, the results thus far have been disappointing to the medical profession, and even if man could be rendered immune, the exceptions would be so numerous as to make it unsafe to depend on that alone.

Much of late has been said of increased vital resistance as a preventive against the invasion of virulent microörganisms. In those predisposed to tuberculosis, this is undoubtedly an important factor. But in cholera, smallpox, diphtheria, syphilis, and scarlet fever, comparatively healthy persons are attacked, and if nothing in the physical condition or hygienic surroundings of the human family, at the present day, can produce the disease without the specific germ, as it has come down to us through propagation in human tissue, vital resistance would be of secondary importance compared to isolation, disinfection, quarantine, etc. If these measures were faithfully carried out, there would soon be no germs to attack even tissue of lowered vital resistance, unless the conditions of the Old World, by which they were first aroused from their dormant state, were recurrent. The results obtained by vaccination in smallpox would seem to encourage a trial of this method of preventive treatment in other diseases, but we must not forget that while vaccination was a great discovery, and has done much to prevent the spread of smallpox, we are also very largely indebted to isolation, quarantine, and disinfection, for the immunity we enjoy from this disease. Indeed, I believe it fair to assume that had it not been for the increased immunity made possible only by isolation and quarantine, mankind would have long ago lost confidence in the protective power of vaccination, and abandoned it as a useless procedure.

That there are almost insurmountable difficulties in the way of carrying out the measure proposed for the prevention of the spread of disease we frankly admit, but, nevertheless, the fact confronts us, that unless we can prove the correctness of our theories by the results obtained, the laity will soon lose confidence in our teachings, and refuse to coöperate in our work, and what has been regarded as the greatest discovery of the age—the transmission of disease through microörganisms — may pass into oblivion, because of the stupidity of the laity and the want of faithful, persistent, courageous effort

on the part of sanitarians and the medical profession.

A summary of our "thoughts" then is:

1. That non-virulent microbes exist in all parts of the habitable globe.

2. That they were made disease-producing in the case of cholera, smallpox, syphilis, diphtheria, and tuberculosis, in the thickly populated centers of the Old World through overcrowding, and bad hygienic conditions, such as have never been known to us.

3. That the virus is always derived from a previous case, and is spread, either directly or indirectly, through human intercourse.

4. That increased vital resistance renders persons immune only in tuberculosis and other exceptional instances.

5. That if virulent bacteria could be prevented from finding a lodgment in human tissue, they would, for want of nutritive pabulum, soon return to their primitive dormant state.

6. That isolation, quarantine, and disinfection, under the direction of bacteriologists, are the only means by which we may hope to successfully prevent the spread of contagious and infectious diseases.

CLINICAL MEMORANDA.

A CLINICAL VIEW OF PYELITIS, WITH REPORT OF A RECENT CASE SUCCESSFULLY TREATED BY INCISION AND DRAINAGE.[1]

By J. HOWELL WAY, M.D.,
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PYELITIS is the name given by R. Ayer to inflammation of the pelves of the kidneys and of their calices. The disease may affect one or both kidneys, it may be acute or chronic in its course, but like the majority of genito-urinary disorders encountered in practice, is usually subacute or chronic, undergoing, perhaps, from time to time acute exacerbations. In simple catarrhal inflammation the mucous lining of the renal pelves is reddened, swollen, and pours forth an abundant secretion containing pus-corpuscles, epithelial cells in varying quantity, and occasionally also blood-corpuscles. In more severe types, met with almost solely as a complication of other pathological conditions, an actively purulent or ulcerative inflammation may exist. In chronic pyelitis the mucous lining of the pelves is thickened and its surface studded with small vascular granulations; the pelvis, infundibula, and ureter are also thickened, and usually dilated as well. Pus is freely poured forth and, if the patency of the ureter be maintained, escapes with the urine. Should an obstruction take place in the ureter, as frequently occurs from the thickening of its walls, or from coagulated blood, or thickened flocculi of pus, from calculi or from the presence of parasites, it accumulates in the pelvis, distending it more and more, and giving rise to a condition known as pyonephrosis. This process of dilatation, as it increases, encroaches first upon the papillæ, flattening and eventually obliterating them. Later the pyramids are subjected to the same pressure and atrophy, and finally, when the pelvic dilatation has existed for some time, the cortical portion of the kidneys disappears. In such cases we have only a sacculated pouch remaining, which contains from perhaps only one to many ounces of fluid, often mixed with inspissated pus, products of ammoniacal decomposition, calcareous matters, and calculi. If the pyelitis has been secondary to renal calculi, as it frequently is, there are also apt to be present more or less extensive ulcerations. Perforation of the renal pelvis sometimes takes place, with resultant extravasation of its contents into adjacent tissues or organs. The perirenal tissues, the bronchi, the pleural cavities, the intestine, the bladder, the structures immediately behind and below Pouparts' ligament, and, rarely, the peritoneal cavity are all possible sites for the discharge of the secretions of a perforated pelvis. In cases of pyelitis of long standing we not infrequently have developed from an increase of interstitial connective tissue and an atrophy of renal tubules a condition of contracted kidney differing perhaps but little, save in its etiology, from the cirrhotic kidney of certain types of Bright's disease.

Probably first among the causes of pyelitis is the extension of a diseased condition from the bladder along the ureter to the kidney. Whatever produces retention of the urine may set up cystitis, with its concomitants, fermentation and decomposition of urine, and then later, if the cystic disorder continues, extension along the ureters to the renal pelves. It is the cases of pyelitis from this cause which are so prone to degenerate into pyelonephritis or surgical kidney—the pelvic inflammation induced by microbic action involving the proper tissue of the kidney itself. Potent among the influences in bringing about these results are gonorrhea, stricture, prostatic disease, pregnancy, abdominal tumors, vesical paralysis, etc. The irritation of renal calculi or of other foreign bodies in the kidney-pelvis is a frequent cause of pyelitis. Specific influences, as tuberculosis or rheumatism, at times act as causes. It may be a complication of typhoid fever, pneumonia, scarlatina, diphtheria, and smallpox. Traumatisms, blows, or contusions in the iliocostal region may be the causative factors. The irritant action of a hyper-acid urine or of the overuse of diuretics of the stimulant kind, copaiba, turpentine, or cantharides, may set up a catarrhal pyelitis. A primary pyelitis or pyelonephritis, coming on after over-exertion or exposure to cold, and without any of the above causes apparently being in operation—idiopathic pyelitis—has been described by a few writers, but its existence is denied by the majority of medical authorities; yet I am convinced that we do meet at times with such cases. In this class I have placed the case herein reported.

The mild catarrhal cases occuring in conjunction with the specific fevers are, as a rule, devoid of very pronounced

[1] Read before the North Carolina Medical Society, May 14, 1896.

symptoms, and doubtless in the great majority of instances pass unrecognized, the pain in the back, if present, and modified urine being referred to other causes. Pain in the back, deep-seated, usually limited to the affected side where the disease is unilateral, aggravated by pressure and exercise, is generally present, though in occasional cases this symptom is absent. Where renal calculi are present, attacks of nephritic colic are experienced from time to time. In some cases, without the presence of stone there occur attacks of paroxysmal pain having all the typical features of nephritic colic. The secretion of urine is increased, and early in the disease contains blood-corpuscles, albumin in moderate or small amounts, and an abundance of small round or oval spindle-shaped or irregular epithelial cells thrown off from the renal pelvis. Only a few years since it was claimed that there were certain peculiarities about the pelvic epithelium—the so-called "tailed epithelium"—which rendered the diagnosis of pyelitis certain. The recent careful and painstaking investigations in the laboratory of Professor Satterthwaite have conclusively demonstrated the impossibility of basing a positive diagnosis of pyelitis upon anything found in the urine with a microscope. Later in the disease this profusion of epithelial cells is replaced by pus-corpuscles, which are evenly distributed throughout the urine, giving it a uniform turbid appearance when voided. On standing, the pus settles into a dense greenish oily-looking deposit. The specific gravity of the urine varies from 1025 to 1030, and is from first to last, as a rule, uniformly acid. Occasionally the pus disappears entirely from the urine for a few days, then reappears in increased amount, this being usually due to temporary occlusion of the ureter of the diseased kidney. Exercise increases the volume of pus. Where the ureter becomes occluded, we not infrequently have some swelling developed in the iliocostal space. The prominence of this swelling varies from time to time. When the ureter is open it may quite disappear; the ureter becoming plugged again with pus, blood-clot, or stone, the swelling promptly reappears. The pain in the back is usually greater when the swelling is prominent and pus is not flowing freely. Frequent micturition is usually met with in pyelitis, and when this symptom is pronounced, in the absence of pain, tenderness, or tumor in the loin, errors in diagnosis may readily occur. This tendency to frequent micturition in pyelitis is present as a reflex symptom, even in those cases where the bladder itself is unaffected. Suppurative pyelitis, whether occurring idiopathically or as an intercurrent affection, is usually ushered in with more or less pronounced chilliness, followed by fever. This tendency to rigor is apt to recur, assuming at times a quotidian or tertian type, in which event the disorder may be mistaken for malaria. When the pyelitis is bilateral, a subnormal temperature, according to Tiffany, is frequently noted. Later the fever assumes a hectic form and the general clinical picture of prolonged suppuration is presented. The clinical course of some cases, more especially those of tubercular character, resembles very much that of typhoid fever. In rare instances cases are seen which show pyuria present, with possibly slight tenderness over the kidney from time to time, without the supervention of serious constitutional or local symptoms. The appetite is apt to be poor—at best capricious—the digestion impaired, and the bowels alternating from constipation to diarrhea. Exceptionally the decomposition of urine and absorption of ammoniacal products give rise to the development of a train of obscure nervous symptoms similar to those presented in the last stage of diabetes. In this connection it is well to bear in mind the possibility of uremic symptoms arising.

Suppurative pyelitis is frequently confounded with cystitis. The two conditions may coexist in the same patient, but if carefully noted, the history of the case, the acid character of the urine, the less frequent occurrence of alkaline decomposition, the pain and swelling in the loin, the absence of vesical pain, would usually suffice to differentiate the two conditions. In perinephritic abscess neither pus, blood, mucus, epithelium, nor albumin are found in the urine; in pyelitis all are present. In perinephritic abscess, motion is much more painful and the patient, as a rule, is unable to straighten perfectly the affected side, the leg being held in the position of that of a patient in the first stage of hip-joint disease.

The *prognosis* in a given case of pyelitis will depend most, perhaps, upon the exciting cause. In simple catarrhal cases developing in connection with constitutional disorders, the prognosis is good. If the disease be limited to one side, recovery is possible, no matter how serious the lesion. Affecting both kidneys, the prognosis is unfavorable. Occuring as a secondary affection to prostatitis, cystitis, urethral stricture, it is necessarily considered serious. Dependent upon a renal calculus, hydatids, cancer, or tubercle, we can but view it with concern. When pyonephrosis is present, the condition becomes grave; pressure-atrophy may destroy the kidney, or fatal rupture may take place.

The *treatment* of pyelitis will depend largely upon the causes inducing the disease. During an acute attack attended with fever, severe pain, and frequent passing of bloody and purulent urine, attention to the *primæ vie*, with an opiate to allay spasm, warm diluent drinks, hot baths, hot local fomentations or wet cups over the affected kidney will meet the more prominent indications for treatment. Lithia waters have been highly extolled by some physicians in pyelitis. Alkaline and antiseptic diuretics are probably productive of beneficial results in these cases. In chronic cases, and it is this class that are seen, or at least diagnosed, most frequently, where there are reasons to suspect the possible presence of stone or other conditions which may at any time induce obstruction to the flow of urine, every effort should be made to counteract with suitable regimen, diet, and tonics the tendency to asthenia. The patient's symptoms and the local conditions should be noted most carefully, and if, after a short time, the indications of disease continue and the local conditions are unimproved, I believe it is then our duty to cut down upon the kidney and drain it. The use of the aspirator as a means of treatment is mentioned only to condemn it, increasing observation convincing me there are very few conditions of the human body where the scalpel cannot be more advantageously used than the as-

pirator. I desire to direct your attention briefly to a case recently operated upon with successful results:

On December 20, 1895, I was consulted by my friend Dr. Wilson, of Sonoma, who gave the following history of his patient, presented a specimen of the urine, and requested my assistance in diagnosis and treatment: B. B., a tall, angular, robust mountain farmer, aged thirty-eight, six or seven weeks previously after working very hard and exposing himself, was taken with a pronounced chill, followed by fever. Great pain and decided tenderness were early experienced in the left iliocostal space. The urine was voided frequently, and was often bloody and purulent. Chilliness from time to time continued with an intermittent type of fever. He became reduced in flesh and experienced night-sweats. The urine continued as before. Sometimes the Doctor thought there was possibly a small tumor in the region of the left kidney, at others he was not so sure of it, and even doubted the existence of any. I found the urine distinctly acid in reaction, albuminous, loaded with pus, blood, and epithelial cells. A probable diagnosis of suppurative pyelitis was made, and an operation suggested. January 11, 1896, I was summoned to see Mr. B., who told me that he had finally "consented to be cut, if it could be done without taking anything"—meaning an anesthetic. He was quite reduced in flesh; pulse 126; temperature, at 3 P.M., 102.6°. Dr. Wilson stated that the same symptoms as previously detailed had continued present. The patient was placed upon the table, and as careful preparations were made as would be possible in a mountain cabin with one room, 16x18 feet, inhabited by the husband, wife, and seven children. Four ounces of whisky were administered, and a four-per-cent. solution of cocain muriate was injected along the line of the proposed incision. An anesthetic, with inhaler, was ready at hand for use, in case the patient changed his mind. I must not omit, however, to state that he did not, and no anesthetic other than the whisky and cocain was used. A slightly oblique incision, four inches in length, was made, extending from the last rib at a point from 3½ to 4 inches to the left of the vertebral spines, passing a little forward as it descended to the iliac crest. The abdominal wall was carefully gone through, being 2¾ inches in thickness at this point, when, with the edges of the wound well retracted, the renal capsule and the distended pelvis bulged slightly into the wound as backward pressure was made in front on the abdomen. This was opened, when about eight or ten ounces of bloody, purulent, urinous fluid escaped. More or less thick flocculi of partially inspissated pus were found in the pelvis and calices of the kidney, but no calculi. After thoroughly washing out the pus-cavity, a liberal pledget of iodoform gauze was carried to the bottom of the wound, which was left entirely open. Dr. Wilson skillfully conducted the after-treatment, daily washing out the cavity and gradually shortening his pledget of gauze. From him I learned that only for a few days was there any urinous flow from the wound, which gradually filled from the bottom by granulation. This patient called at my office a few days since. He looks strong and well, and tells me that he is entirely free from any symptoms of urinary disease. In answer to my inquiry as to the existence of any antecedent genito-urinary or venereal disease prior to the pyelitis, he insisted on possessing a "clean bill of health from his youth up." September 10, 1896, he reported himself in excellent health.

SUBCORACOID DISLOCATION OF THE HUMERUS IN A MAN NINETY-TWO YEARS OF AGE—REDUCTION, WITH PERFECT RECOVERY.

By H. D. WALKER, M.D.,
OF FRANKLINVILLE, N. Y.

THE following case is thought worthy of reporting for two reasons; first, I am unable to find the report of any one of that age with a dislocation of the humerus, and second, I failed to reduce by Kocher's method, but easily accomplished reduction by other means. The oldest person I can find recorded with a dislocation of the humerus is eighty-six years of age. Guterbock reports one, both humeri being dislocated in an old lady by falling from her bed,[1] and Dr. H. B. Sands reports another in a lady, also aged eighty-six years.[2]

On December 23, 1894, I was called to see Mr. M. S., ninety-two years old on the seventh day of the preceding September. While emptying a pail of water he had slipped on a stone covered with ice and fallen heavily, striking on the left shoulder. He was picked up by his friends, carried into the house, and I reached him about half an hour after the accident. I found him sitting in a large rocking chair supporting his left arm with his right hand. He was very pale, and at intervals would lose consciousness from the pain and his weak condition.

On removing his clothing to the waist and examining him, I noticed that the left arm was abducted from the body about thirty degrees. There was an abrasion of the skin on the left shoulder at the upper posterior and outer part, showing plainly where the force of the fall was received. On placing the hand on the opposite shoulder it was impossible to bring the elbow down to the chest. The acromion process was prominent, and on rotating the arm the head of the humerus could be plainly seen and felt beneath the coracoid. After giving him a glass of hot whisky, I laid him on his back on a lounge, and, with an assistant to hold down the opposite shoulder, proceeded to reduce the dislocation by Kocher's method, as modified by Dr. C. A. Powers.

Four times I faithfully tried to reduce the bone in this way, but failed. In performing the second movement, *i.e.*, rotating the arm outward, so much resistance was met that it was not fully rotated, the patient exclaiming each time that I would break his arm. I did not deem it prudent, in his condition, to give an anesthetic, moreover, I have always succeeded in reducing a dislocation of the humerus without one. After a short rest, I placed a towel through the axilla and directed an assistant to take hold of the hand and make moderate extension, first, directly downward and forward, then gradually across the body to the right.

[1] MEDICAL NEWS, vol. xlvii, page 541.
[2] *Med. Record*, vol. xix, page 45.

While the extension was being made in this way I drew upward and outward on the towel, when the head was felt distinctly as it slipped back into place. This is the first time I have failed to reduce a subcoracoid dislocation by Kocher's method, and it may be well to inquire why I did not succeed. I attribute the failure to a lack of rotating the arm sufficiently outward, being fearful, on account of the age of the patient, the great resistance met, and his cries that I would break his arm, that fracture would actually occur. What was the cause of the uncommon resistance met with on rotating the arm outward? I am of the opinion it was due to degeneration of the muscles and ligaments about the joint, consequent upon old age, so they would not permit full rotation of the arm outward. I notice there are contractions of the palmar fascia in both his hands, also a want of freedom of motion about the right shoulder and the joints generally, such as we usually find in old persons. At the present time, about one and a half years after the injury, I find the arm in as perfect a condition as the right one.

MEDICAL PROGRESS.

Celluloid Bandages.—Landerer and Kirsch, (*Centralblatt f. Chirurgie*, 1896, No. 29) have experimented with celluloid as a substitute for plaster of Paris in bandages. The weight of such a bandage is less than one-fourth that of a plaster-of-Paris one and less than half that of one stiffened with water-glass. It is said to be not very expensive. According to the authors a jacket costs in Germany about 5 marks ($1.25), which is no real objection to its use when one considers that, if well made, it will last for months, and presents the further advantage of a smooth surface, readily cleaned, and is impervious to urine and other discharges.

Its application is as follows:

The sheet celluloid is cut into small pieces and dissolved in a close-stoppered bottle in acetone, enough of the fluid being used to rise four times as high in the bottle as the celluloid. This solution of celluloid is rubbed into each layer of the gauze or crinolin bandage or jacket, an ordinary kid glove being worn for the purpose, as the celluloid otherwise dries on the skin, and can only be washed off by acetone. For a jacket at least ten layers are necessary; for a bandage from four to six layers, according to the strength required. The outer layer is smeared with a coating of the celluloid, which forms, when dry, a highly polished surface. It takes three or four hours for a celluloid bandage to dry. That is considerably longer than is the case if plaster-of-Paris is used. In order to permit of ventilation, small holes may be punctured in the jacket wherever necessary.

Arsenical Paralysis.—Comby in the *Gazette Médicale de Paris*, July 4, 1896, mentions the case of a girl aged seven, whom he treated for chorea by the administration of arsenic, commencing with one-seventh grain and increasing up to one-half grain of arsenious acid. In eleven days she received nearly four grains (235 mgm.) of arsenious acid. There were no choreic movements after the fifth day. On the sixth day gastric symptoms developed, and continued some time. On the twenty-sixth day the patient left the hospital completely cured. Four weeks later she was attacked by paraplegia in the legs, followed some days later by loss of power of the muscles of the trunk, arms, and sphincters. Electrical reaction was absent. Meantime the patient, who had first entered the hospital pale and thin, had become stout and rosy-cheeked. Under strychnin, electricity, and sulphur baths there was complete recovery in about five weeks. Comby considers that the nerves were not affected by the poison, but that the patient suffered from arsenical myelitis.

Instrument for Injecting Artificial Serum.—Tolédano (*Journal de Médecine de Paris*, June 28, 1896) has devised a simple and practical instrument for the injection of artificial serum. It consists of a stout bottle, which holds the fluid to be injected. Through a rubber cork two glass tubes enter the bottle. Connected with one is a hand-bulb. The other one, which reaches nearly to the bottom of the bottle, is connected with the injecting needle. By means of the bulb air is pumped into the bottle and the serum is forced out. A chain over the cork keeps it in position.

Treatment of Ocular Traumatisms.—Trousseau (*Gazette Hebdom. de Méd. et Chir.*, June 14, 1896) gives as general rules in injuries of the eye: (1) Render aseptic the eye and conjunctiva. (2) Cover it with a dry aseptic dressing.

The former is best accomplished by free lavage with a warm bichlorid of mercury solution 1–4000. If free from alcohol and filtered, this solution cannot possibly do any harm. With the patient in a horizontal position, the lids are held apart with one hand while the solution is allowed to trickle into every corner of the eye from a mop of absorbent cotton. When thoroughly cleansed, the eye is covered with a dry, sterile dressing and a starch bandage.

Foreign bodies, if superficial, should be removed under cocain. Wounds of the conjunctiva are to be stitched with the finest catgut or silk. Wounds of the ciliary circle are dangerous, and should not be touched. Small wounds of the sclerotic heal readily; larger ones should be closed by a conjunctival flap. The author speaks against hasty enucleation, meantime watching carefully the other eye for sympathetic ophthalmia.

Apparent Recurrences of Malignant Tumors.—Gade (*Deut. med. Wochenschrift*, July 2. 1896) mentions a pseudo-recurrence of a malignant tumor in the scar left by its operation, which may very likely have caused anxiety to others. In two instances in his practice a rapidly growing hard nodule in the cicatrix of a recent operation led the operator to suspect malignancy. The nodules were removed, and upon microscopical examination they were found to be composed of fibrous and granulation tissue surrounding a few cotton fibers. This possibility of including in a wound aseptic threads of cotton is an increased one, since the use of dry-gauze sponges has become general.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, SEPTEMBER 26, 1896.

TREATMENT BY ERYSIPELAS TOXIN.

IN an article published in the *American Journal of the Medical Sciences*, September, 1896, Coley reviews the literature of the treatment of malignant tumors by injection of the toxic products of erysipelas cocci and prodigiosus bacilli, and gives details of the most instructive cases treated by himself and several other surgeons.

Recognizing the caution with which reported cures of malignant tumors have ever been received, the author has taken pains to avoid error in diagnosis, and has confirmed in almost every instance the clinical diagnosis by a microscopical one. Several microphotographs and photographs of patients before and after treatment, are reproduced. In all, 168 patients were treated by him, 94 of whom were suffering from sarcoma, 63 from epithelioma or carcinoma, and 10 from tumors, the character of which, though apparently malignant, was not absolutely determined. A few non-malignant cases were also treated.

In thirteen of Coley's patients, and ten of other surgeons, the tumors entirely disappeared. In a few instances there was a recurrence in a few weeks or months, but in the large majority no recurrence had manifested itself at the time of report, though the author does not claim that these patients are permanently cured, and owing to the uncertainty of results, he advocates this treatment only in inoperable cases. The longest elapsed time without recurrence is now over four years, the living cultures having been employed in that case.

With three exceptions, all of the tumors which disappeared under the injection of the toxins, were sarcomata. To set these twenty cases all aside as worthless, on account of a possible error of diagnosis, is to say that some half dozen of our most skilled pathologists and three times as many surgeons do not know a sarcoma when they see it; and the same sort of sweeping generalization would have to be applied to the results obtained by operation on tumors of this class. Welch, in discussing this point before the Johns Hopkins Medical Society, April 6, 1896, said that some pathologists are inclined to rank certain kinds of sarcomata among the infectious, rather than the genuine, tumors; but that this applies to the lymphoid rather than the spindle-celled sarcomata, and the fact that the best results, after injection, have been obtained in the spindle-celled tumors (fourteen injected, seven cured), is especially strong evidence of the specific curative power of the toxins.

Just what the underlying principle is, or how wide its application, Coley himself is not prepared to say. In many cases, the effect of the toxins was shown for a time by a decrease in the size of the tumor, an improvement which was, unfortunately, only temporary. In other cases it was apparent that the general condition of the patient could not stand the depressing effects of the injections in sufficient quantity or for a sufficient length of time to destroy the malignant neoplasm.

Coley has had better success with this treatment than the other surgeons who have tried it. More than one-half of all the sarcomata which came under his treatment showed at least a temporary decrease in size; and of the fourteen cases of spindle-celled sarcoma, seven, or just one-half, disappeared and have not returned. This is the type of sarcoma which responds most easily to the treatment. This favorable showing is doubt-

less partly due to the zealous continuance of treatment under conditions which would ordinarily be called hopeless, but still more, perhaps, to the fact that the toxins employed by him were all from fatal cases of erysipelas, and were proved to be possessed of a great degree of virulence. For clinical and experimental testimony agree that there is the greatest variation in the intensity of different cultures of the same bacteria, as has been strikingly illustrated—for example, in the experimentation of the New York Health Board in the production of diphtheria antitoxin.

Without for a moment sharing the illusory hopes, which every new remedy creates, the conclusion is certainly warranted that in the use of these toxins, we have a means of attack upon malignant growths, especially efficacious against certain forms of sarcomata, but whose influence extends to a certain degree to almost all of the varieties of malignant tumors, and it is not unreasonable to expect that a further experience will so extend that influence as to save many victims of cancer, whose disease is beyond the reach of the knife.

FAKE SCIENCE.

Some months ago we had occasion to speak under "The Color of Sin" of the debt of gratitude under which the secular press was constantly placing scientific medicine, by heralding medical discoveries so far in advance of actual fact and reasonable probability that the medical press seemed but laggards in the march of progress. At that time it had discovered one Elmer Gates, of Washington, D. C., who had discovered that the reaction of the perspiration, when treated by certain reagents, gave certain colors, which were indicative of the emotions under which the individual was laboring, and especially that the pink reaction was indicative of conscious guilt—the color of sin. More recently this same Gates is represented as advancing still farther into the illusory realms of biology and psychology and announcing as scientific fact the visionary mysteries of a morbid imagination.

He has been able to train animals and human beings in such a way that he causes the development of new ganglion-cells in the cortex of the brain. He purports to be able to utilize such knowledge for pedagogical purposes, and we are informed that not only his own child, but the children of others are having new ganglion-cells developed in their cortices according to the method which he has discovered.

What we know of him and of his experiments does not inspire us with confidence in his results. That he is *unofficially* attached to the Smithsonian Institute and that he has a laboratory in Washington, which is supported by the wife of a California senator, would seem to be true. Whether or not his results represent the labor of twenty years (as he maintains they do) is not germane to the subject. He began the publication of his claims by an article in the *Monist*, which was followed by others in the *Metaphysical Magazine.* In these articles, not only was the description of methods entirely insufficient, but there was a betrayal of ignorance of the nature of the animals on which he experimented. Although he has been offered the pages of *Science* for an exposition of his experiments, Gates still seems to find a syndicate article in the Sunday edition of the great dailies the most satisfactory medium for the enunciation of his views.

During the past winter he gave a lecture before the Educational Club in Philadelphia and another before the School of Industrial Art, which he thought would be a fitting place for the establishment of a great laboratory for the genesis and growth of ganglion-cells. He visited the histological and psychological laboratories of the University of Pennsylvania, and even ran his eye over the Pepper clinical laboratory, which he thought might be a possible field for his great work. He is the Keely motorman in physiological psychology. His addresses in Philadelphia contained nothing that he had not said before; as a mission for the revelation of his methods, it was a failure, and he returned to that favorite abode of pseudo-science in which he lives, without having fulfilled any of his promises.

The newly discovered stain, of which he speaks so much, is as indicative of charlatancy as is the rabbit-foot of the negro hoodoo. He calls it iodate of rhodopsin—a substance which he himself considers mysterious in its constitution and

action, but which to us seems the essence of simplicity. It belongs to that class of which bicarbonate of mucilage is the type.

There are not wanting other stigmata of the charlatan, such as the boundless promise of regeneration, which he extends to the human race, if they will but follow his method of cell-cultivation. He believes that criminals and the children of criminals can be swayed into the paths of righteousness by filling their brains with good memory-images, and thereby allowing evil memory-images to atrophy. We shall say nothing about the apparatus that he has invented for supplying oxygen to the atmosphere of houses, which shall stimulate our intellectual faculties and improve our emotional and moral natures, except to remark that if he has been experimenting with the apparatus in his own dwelling, there is no inducement to give it a trial.

If Dr. Gates is not the humbug that these methods and claims show him to be, if he has anything in his six laboratories of biological, physiological, and psychological research, we call upon him to disclose his methods so that the cause of science may not be degraded by the manners of a public trickster.

ECHOES AND NEWS.

Bone-marrow.—Parisian restaurants are serving bone-marrow, raw, on slices of bread, for its tonic effect.

Seven at a Birth.—From Dopat, Germany, Dr. Dietrich Barfuth reports a case of seven children at one birth.

To Inject Courage.—A French doctor claims to be able to inject courage into men by means of a mixture of sea-water and phenic acid.

Beriberi at Dublin.—Another outbreak of beriberi has occurred at the Richmond Lunatic Asylum, Dublin, about twenty inmates having been attacked.

The Murphy Button.—At a recent meeting of the Chicago Gynecological Society, Dr. L. L. McArthur reported three fatal cases following the use of the Murphy Button.

Absorption of Medicines.—From experiments recently made by Bersonon, weak solutions of alcohol and sugar are preferable to gums or starches as vehicles for hastening the absorption of a drug.

Vaccination in Afghanistan.—The Amir of Afghanistan has given orders for the introduction of vaccination by calf-lymph. Smallpox destroys one-fifth of the infant population every time an epidemic appears in Cabul.

Dartmouth Medical College.—Dr. William Thayer Smith, who has been professor of physiology for a number of years, has been appointed Dean of Dartmouth Medical College, to succeed the late Carleton P. Frost. Professor Gilman P. Frost has been appointed the secretary and treasurer.

Heavy Damages for Sewer-poisoning.—For maintaining a ventilating-shaft in a chimney of a house belonging to a gentleman whose death was alleged to have been caused thereby, the King's Norton Rural District Council was mulcted in the sum of £3500 at the Birmingham Summer Assizes.

Diphtheria Antitoxin in Austria.—Out of 1100 cases of diphtheria treated with antitoxin in Austria, 970 recovered. When this remedy was employed in the first two days of the sickness, the percentage of deaths was only 6.7. Of 318 cases of preventive inoculation, only 20 were attacked by the disease, and these in a mild form.

Leprosy at Bellevue.—A German baker, who had been sleeping at the city lodging house on the Bellevue Hospital grounds, was discovered to be suffering from leprosy. He was sent to join the leper colony of two negroes and two Chinamen, on North Brother's Island. He contracted the disease in Brazil.

A Crusade Against Noises.—The Health Commissioner of Milwaukee is the initiator of a much-needed crusade. His proposition is that a certain amount of nerve-energy is required to resist noises, and when these are abnormally loud they make a large drain upon the nervous system. He therefore intends, as far as he may, to stop all unnecessary noises.

A Protozoan a Cause of Cancer.—A parasitic ameboid rhizopod, described as *Leydenia gemmipara*, has been found in the fluid taken from patients suffering from cancer of the stomach, and is believed to have a causal relation to that disease. The discovery of this new protozoan was made at Professor von Leyden's laboratory at the University Hospital, Berlin.

Two Typhoid Outbreaks.—Professor Sedgwick, of the Massachusetts Institute of Technology, has been investigating the recent outbreak of typhoid fever at Cambridge, which, at one time, threatened an epidemic. He has traced every case to the milk-supply, there being a case of typhoid in the family of the milkman. The New Haven outbreak has resulted in the drafting of an ordinance providing for the licensing of milk-vendors and an inspection of the milk and of its sources of supply.

The Plague of St. Kilda.—Between 1860 and 1865, out of 125 children born on the island of St. Kilda, 84 died within the first fourteen days of life. Unsuccessful attempts were made at various times to discover the morbid agent, and the natives finally regarded the disease as a dispensation of Providence. In 1892 a Glasgow physician recommended an iodoform dressing for the cord, with the result that there has not been a single death among the infants. The mysterious malady was tetanus neonatorum.

The Effect of High Altitudes on the Blood-corpuscles.—The blood contains a larger number of corpuscles in the mountains than on the plains, and this increase occurs at very moderate elevations. Dr. Arnould points out, in the *Revue d'Hygiene*, that diminished barometric pressure is only one of a series of influences exerted by residence at a high altitude, among which must be mentioned the purity, the dryness, and the comparative low temperature of the air of the mountains, together with the intense solar radiation in these parts.

Gould's Dictionary of Medicine.—The Educational Number of the *Lancet* commends the above book as one of the best dictionaries of its kind that it has ever seen. "It should have a place in the library of every medical man." The list of books recommended for the consideration and choice of medical students occupies several pages, but if our examination of that list has not been too cursory, there is no other English-made lexicon among them. Dr. Gould is to be congratulated upon such spontaneous and unusual commendation.

New York State Medical Society.—The Business Committee of the Medical Society of the State of New York, consisting of the following members, has been appointed: Dr. Seneca B. Powell, 12 West Fortieth street, New York, chairman; Dr. Willis G. Macdonald, 27 Eagle street, Albany; Dr. Ernest Wende, 471 Delaware avenue, Buffalo. Communications regarding papers to be presented at the next meeting of the Society, to be held in Albany, January 26–28 next, may be addressed to them or to the President. Dr. James D. Spencer, of Watertown.

A Professional Skeptic.—Dr. Schweninger, Bismarck's physician, delivered an address at the Berlin exhibition on "Medical Men and Medical Practice." He holds that medical science consists essentially in the study of one's self, in the avoidance of disease as far as is humanly possible, and, when it does come, in awaiting its departure with the greatest possible amount of resignation. He advised haste in "making use of each new remedy while it still cures." The medical man of the present day is, in his opinion, surgeon, bacteriologist, electrician, anatomist, microscopist, physicist, or physiologist, but is very little of the physician. He holds most of the new discoveries of medical science to be either useless *ab origine*, or old remedies long since tried and abandoned. The corset in woman and the silk hat in man, he declared, were the two great sources of ill health.

Libraries of Three Thousand Volumes.—Mr. G. Hedeler of Leipzig writes as follows, regarding his laborious work of listing the important private libraries of all countries, whether general, medical, or special: "The 'List of Public Libraries of all Countries,' compiled by Royal Librarian Richter, has been completed by me some time ago, and I now propose to follow it by a similar 'List of Important Private Libraries.' In order to be able to apply for particulars to the owners of private libraries it is first necessary for me to ascertain their names, and for this purpose to be favored with kind assistance from any quarter. Would you perhaps have the great goodness to note for me the names and addresses of any of your acquaintances whose libraries you may estimate as exceeding three thousand volumes, or smaller if devoted to some specialty." He deserves the help of all good Americans who have given special attention and care to the collection of medical libraries.

The English Department of Sei-i-Quai.—The *Chemist and Druggist* pokes fun at the pidgin-English of a newly appointed Japanese editor, saying: *Sei-i-Quai* is a Japanese journal which is printed both in the vernacular and in English. The editorship of the English section of the journal has recently been assumed by Dr. Kimura, who makes an announcement to that effect in the paper, and then starts off by describing Dr. Kitasato's experiments with the bacillus of the Chinese plague in this way: "The pest-bacillus is of rod-shape whose both extremities stain deeper than the middle part with anilin pigment, and has a capsule; its shape resembles the bacillus of chicken cholera. The pest-bacillus is differ from all other bacilli of infectious diseases, being inoculated by three channels—by lungs, stomach, and by hypodermic injection. In the blood of the patient in convalescent state, after decline of fever, abundant of the pest-bacilli still present; and therefore, immunity to the disease can easily be secured, by a certain method which Dr. K. is investigating at present." Dr. Kimura's assumption of the editorship of the English section of the paper reminds us of the old *Punch* joke about the amateur actor who asked a friend, "How did you like my assumption of the part of Hamlet?" "My dear fellow," came the reply, "I assure you it was the greatest piece of assumption I ever saw in my life."

Shorthand in Medicine.—Those practitioners, says the *London Lancet*, September 5th, who wish to take notes of cases or to record facts in their note books, which have been gleaned in readings or by observation, will find in shorthand a means not only to greatly economize time, but will change the laborious task of recording notes in long-hand into a work of pleasure. Its use by the student is of equal value. In the lecture theater, in the demonstration rooms, by the bedside, in the out-patients' department, and in a variety of other ways, the use of shorthand will enable him to record his experience in less time and in a more convenient manner than by the use of long-hand, and, in addition, the information will be ready to his hand when wanted. There is also another advantage, and this not a small one, which the study of phonography confers. Rightly used it has an educational value of its own. In acquiring any kind of knowledge two of the most important habits to develop are attention and method, and both are developed and strengthened by an intelligent use of phonography. Efforts are being made to induce the General Medical Council to recognize shorthand as an extra optional subject at the preliminary examination, and petitions, with that object in view, have been presented to the Council. Whether the desired object will be attained or not we strongly advise all medical students, if they can find the necessary time, to learn shorthand.

The Water Supply of Brooklyn.—The Department of City Works of Brooklyn has received from Professor A. R. Leeds, of Stevens Technological Institute, a preliminary report of his investigation as to the causation and prevention of the malodorous condition of the Ridgewood water supply. All the specimens in themselves are colorless. What has been termed their color is, properly speaking, their turbidity, and this turbidity is due to foreign suspended matter in the form of fine whitish particles, and in the form also (this latter condition being much the greater in bulk) of flocculent whitish-yellow filaments or strings. Dr. Leeds explains that the turbidity is due to two different kinds of foreign matter, the greater part settling quickly as coherent strings to the bottom of the jar, the smaller part remaining permanently suspended in the water and giving it a permanent opalescence. This opalescence is similar in character to that of the water of the driven wells used by neighboring communities on Long Island for their water supply, after this water has lost its perfectly colorless, limpid appearance on standing for some time exposed to the air. The opalescence contains nothing that is capable of identification and study under the microscope. From experiments that could not be detailed here, it appears that the principles which impart the odor are volatile amides belonging to the aromatic series of organic compounds. Those which impart the taste are amides, also, of closely related composition, but of less volatility and probably of less solubility. From these data it will be seen that the free and albuminoid ammonias are present in very small amounts in most of the samples. But the nitrates are present in enormous quantities, making the lowest ratio in which the mineral nitrogen is greater than the organic nitrogen 8, and the highest 128. In connection with the small amount of albuminoid ammonia, it should be brought prominently into view that in its normal and usual condition, the Brooklyn water contains this constituent in exceedingly minute quantities. In fact, the Brooklyn water, in its ordinary state, should be ranked as first in regard to purity of all of the water supplies of our principal cities. This encomium is made deliberately and advisedly, and is based upon a comparison of the analyses, spread over twenty-six years, of the water supplies of all the important towns in this country and Canada. But, in its present condition, it has been a peculiarly favorable habitat for the multiplication and growth of certain vegetable organisms, which, in turn, have secreted the products that have rendered the water turbid, and, in course of their decomposition, have originated the foul tastes and odors. The absolute quantity of decomposed material in the water, instead of being large, is very small, and the taste and odor are due to an excessively minute quantity of the amide substances. The objectionable odor, color, and taste of the water are due to vegetable organisms coming from the supply, which produce their objectionable effects after the water enters the distributing system. There is no danger in the use of the water at present.

The Relative Strengths of the Antidiphtheritic Serums.—The following is a portion of a letter to the *London Lancet*, by Dr. Hermann M. Biggs of New York, on the above subject; the date of the letter is August 13th and the date of the journal in which it appears is August 22:

"It has been a source of surprise to us in America that so little attention has been given to this phase of the subject in Great Britain, and to the necessity for the statement on every phial of antitoxin not simply of the dose of the serum, but of the antitoxin value of each cubic centimeter of the contents. These matters, as you have pointed out, are of preëminent importance.

"In January, 1895, on the motion of Professor T. Mitchell Prudden and myself, the New York City Health Board adopted an amendment to the Sanitary Code requiring that all preparations of diphtheria antitoxic serum exposed or offered for sale in New York City should bear labels showing the strength in antitoxin of the contents as measured by some generally recognized standard of value. The result of this action has been that nowhere in America, so far as I know, have preparations of antitoxin been sold which do not conform to this requirement, although the action of the New York Health Department in adopting regulations regarding the matter has not been generally followed. Tests of the preparations of antitoxic serum on sale are made in various parts of the United States by the different sanitary authorities to determine their conformity to the strength given on their labels, notably by the Massachusetts State Board of Health, and the New York Health Department. I have been much surprised by the low grade of the preparations used in Great Britain. As will be seen by the enclosed circular, so long ago as February, 1896, the New York Health Board discontinued the preparation and use of the 'No. 1' and 'No. 2' grades of antitoxin (Behring's standard), and added to their list three higher grades, Nos. 4, 5, and 6, containing, respectively, 200, 300, and 400 units of antitoxin (Behring's standard) in each cubic centimeter. The whole difficulty in the production of high-grade preparations of antitoxin depends upon the production of high-grade toxic solutions, and the latter were rendered easily possible by the method worked out in the New York Health Department Laboratories by Dr. Park and Dr. Williams, and published in the first number of the *Journal of Experimental Medicine*, edited by Professor William H. Welch of Johns Hopkins University, Baltimore. I am informed that the results obtained in New York have been confirmed by M. Martin of the Pasteur Institute in Paris, and that Kossell of the Institute for Infectious Diseases in Berlin, has recently published an article (which I have not seen) describing essentially the same method, not mentioning, however, the work of Dr. Park and Dr. Williams. The method used in New York has been generally followed in the United States, and high-grade preparations are everywhere to be obtained. Within the last two months another preparation, No. 7, has been added to the list, furnished by the New York Health Department. This contains 500 units in each cubic centimeter.

"It seems unnecessary to refer to the great advantages derived from the use of preparations of antitoxin in which the dose is only three or five cubic centimeters instead of ten, twenty, or thirty cubic centimeters."

CORRESPONDENCE.

SPONGE-GRAFTING IN THE ORBIT.

To the Editor of THE MEDICAL NEWS:

DEAR SIR: In your issue of June 27, 1896, in an article entitled "Sponge-grafting in the Orbit for Support of Artificial Eye," Dr. E. Oliver Belt says: "I cannot find, in all the medical literature in the library of the Surgeon-General's office any mention of sponge being used as I have suggested and tried."

In *Gaillard's Medical Journal* for May, 1889, I published an article entitled, "On the Formation of an Artificial Vitreous Body." In this article I detailed the results of a number of experiments made on rabbits by grafting sponge and cotton in the scleral cavity and sponge into the capsule of Tenon. In the recent meeting of the American Medical Association in Atlanta I presented a paper on the formation of an artificial vitreous body, which, while it did not refer to the orbit, but rather to sclera, might have called Dr. Belt's attention to this subject.

In my original article I detailed my experiment by which I planted sponge in the capsule of Tenon. The rabbit did well until the second month after the operation, when it was observed that the sponge had broken through the line of sutures and "presented a white, honeycombed appearance." "When removed, the sponge seemed to be about twice the size of the eyeball. The contents of the orbit seemed to have shrunk away from it, for the cavity seemed to be quite roomy."

In view of this unfortunate result in rabbits, I have never had the temerity to graft sponge in the orbital cavity of man. Dr. Belt states he has performed this operation in five cases "with fairly good results in all, but union of the conjunctiva has not been firm enough to prevent some of the stitches from breaking or cutting out and the wound gaping."

It would be interesting to know the condition of the socket of these eyes after a year or two have elapsed.

I do not believe the operation will stand the test of time.

I enclose the letter of Dr. Belt to me, which I publish by his permission.

Very respectfully,

J. HERBERT CLAIBORNE, M.D.

NEW YORK,
September 15, 1896.

DEAR DR. CLAIBORNE: Your letter calling my attention to your article in *Gaillard's Medical Journal* about your experiments on rabbits, in which you tried sponge-grafting in the orbit, was received a few days ago. I am very glad you wrote to me about it, as we always want the facts in regard to priority of such investigations, and I believe in giving credit to whom credit is due, although it was also original with myself, as I had never heard of sponge-grafting in the orbit being done, either on animal or man, before doing it myself, and I suppose still that I was the first to try it in the human orbit. Since receiving your letter I have found your article in *Gaillard's Medical Journal* for May, 1889. At that time the *Journal* was not indexed as well as now, and, without your name and the title of the paper, I should have had much trouble in finding it, which accounts for its being overlooked when I searched the records at the Library of the Surgeon-general's office to see if anything of the kind had been done previously. I found the experiment much more satisfactory in man than in the rabbit, which I tried it upon, and hope you will give it a trial.

Yours very truly,

E. OLIVER BELT.

WASHINGTON, D. C.,
August 31, 1896.

SPECIAL ARTICLE.

ADDRESS TO MEDICAL GRADUATES.[1]

BY CH. WARDELL STILES, A.M., PH.D.,
ZOOLOGIST U. S. BUREAU OF ANIMAL INDUSTRY; CORRESPONDENT ETRANGER DE L'ACADEMIE DE MEDECINE (PARIS).

IT may possibly seem strange to you that the Faculty has selected a zoologist to give the parting word of advice to a medical class. Fifty or even twenty-five years ago this would have been looked upon as almost an act of high treason to the medical fraternity; but in recent decades there have been great changes in medical circles, and one of the most logical has been the recognition of the fact that no sharp line can be drawn between doctors of medicine on the one hand, and doctors of science or philosophy on the other; or in other words, between men trained in applied science and those trained in abstract science. My addressing you is, therefore, fully in harmony with the changes our respective professions have recently undergone, and I cannot refrain from expressing my satisfaction at having the opportunity of speaking to you upon this particular occasion, for I feel rather as if I belonged to the Class of '96, since I entered the Georgetown Faculty the same year you became members of the student body.

I intimated that there was no dividing line between the abstract and the applied sciences. The student of medicine is looking more and more to the chemist, the physicist, the botanist, and the zoologist for aid in solving his medical problems. To a chemist you owe the most radical change in thought and practice, which your profession has ever undergone, though it may not be known to you that this man, who has done more to lessen physical suffering in man and animals than any other person of this century, was not permitted by the laws of France to practise medicine. The noted Pasteur clinic of Paris, while virtually under the direction of that ideal man of science, was not under his control in the eyes of the law, and he was obliged to engage as his assistant a doctor of medicine, who should assume the legal responsibility.

But your relations to the chemist were not due to Pasteur alone. Chemistry has taught you nearly all you know about toxicology, and much that you know about physiology; it is the basis of your therapeutics, and if we ever arrive at a solution of that riddle known as "immunity," it will be largely through our friends the chemists.

To the physicist you are indebted for the use of elec-

[1] Delivered before the graduating class of the Medical Department of Georgetown University, Washington, D. C., May, 1896.

tricity, the explanation of the normal and many of the abnormal postures of the body, the principles upon which your instruments are constructed, the explanation of certain conditions in which gravity plays a more important rôle than gravidity, and for the recent development of the X-ray, which promises so much that one is almost afraid to speculate in regard to its manifold applications.

To the botanist you are indebted for data concerning medicinal plants, as well as for very important researches in bacteriology; and it is my firm conviction that if bacteriology ever emerges from its present chaotic systematic condition, it will largely be through the direct or indirect influence of botany, for the pathologist without special training in taxonomy is no more capable of reducing the bacteria to a natural classification than is the botanist without special training in pathology capable of correctly interpreting pathological histology.

To the zoologist you owe the transformation of anatomy from a descriptive into an explanatory science. He has already solved the riddles of many of the rudimentary organs of the human body. You are no longer taught that the pineal gland of the brain is an unexplained organ, possibly the seat of the soul, but you are told that it represents a rudimentary third eye, which has been traced through a long series of animals until found developed to such an extent in certain reptiles that it is probably capable of perception of lights and shadows, while the paleontologist has here come to our aid and shown that in certain fossil reptiles this organ must have been a comparatively well-developed interparietal eye. You no longer learn a minute description of the *plica semilunaris* and then wonder what it is, for you are told that it is a third eyelid, very rudimentary in most human races, slightly better developed in the Malay, while it is well-developed and functional in birds and frogs. Your present knowledge of embryology, histology, the origin of the individual and of the race, and even the *raison d'être* of that fashionable death-trap, the vermiform appendix, you owe directly to zoology. This science has further given you certain animals, such as sponges and the Spanish fly, to be used in your practice; it has given you scientific data concerning the poisonous snakes, which cause so many deaths, and the animal parasites, with names often much longer than the organisms themselves; it has shown you means by which certain diseases may be prevented. In fact, your profession is, in reality, pathological zoology.

Permit me briefly to call your attention to two ways in which you may repay, in part, what you have borrowed from zoology. As practising physicians you will occasionally be able to collect material which will be of use to zoologists. Too frequently the practitioner allows valuable specimens, such as young embryos, deceased monstrosities, and parasites to be cremated, buried, or thrown away, instead of saving them for scientific study. You should remember that no embryo is so young, no monstrosity or parasite so common that it is not of some use to the scientist. How often have physicians said to me: "I would have saved the specimen, had I thought it could be of use to you!" Gentlemen, let me tell you again, as I have already told you in the lecture-room, all such specimens should be saved for scientific purposes. If you meet with objection on the part of the family, which, fortunately, rarely happens among the more educated classes, you can at least make careful observations and notes upon the case. And this leads me to the first suggestions in the way of advice, *i.e.*, observe carefully, and take notes of your observations. These notes cannot be too detailed, especially at first; and probably, for a year or so after graduation, most of you will have ample time to take rather copious notes upon all you observe.

Again, in your practice you will occasionally observe peculiarities in structure, which should be placed on record, such as polydactylism, polymastism, polyorchism, pseudo-hermaphroditism, etc. In all such cases, urge your patient to submit to examination by an anatomist, and if he declines, study the case in detail, look into the family history, and ascertain whether similar peculiarities are known among the relatives. But, before you publish your observations, inform yourself upon the literature of the subject. And this leads me to several further advisory suggestions: I should advise you to keep up your studious habits and not to "rush into print."

As for rushing into print, you may not know that the first serious disease which attacks the graduate is the publishing disease. He is soon seized with an absolute conviction that he is called upon to write an article which shall contain every fact known upon a given subject. I once knew a young graduate in medicine who decided to write a monograph upon the horse, This work was to contain every fact (discovered or undiscovered) about the equine species. I met him from time to time for several years, and saw the plan of this great epoch-making equine encyclopedia gradually dwindle down until the would-be authority published an extensive review of another person's paper on the rudimentary bones in the horse's leg, attaching his own name to the review, but inadvertently omitting the name of the original author and article. Now, gentlemen, do not, I beg of you, write an epoch-making monograph the first year after you graduate. The book-writing disease is one you are all subject to. It is, however, very amenable to treatment, and this is quite simple, although somewhat heroic. It consists in reading a few books which have been written by other men suffering from the same disease. Select any subject, however small, go to the surgeon-general's library and read every article you can find upon that subject, and in most cases, I believe, you will come to the conclusion that you will not publish your monograph until you have made a few original observations in that particular line and have something to say. Do not disgrace yourself and your Alma Mater by becoming a bibliographic kleptomaniac.

In your medical writings, never use a scientific word unless you know its exact meaning and its application to the subject you are discussing. Scientific names are necessary evils. In the writings of one who knows their exact meaning, they are useful; but when used in a loose and inexact way they show poor taste, reminding the reader of Browning's lines:

> As when in certain travel I have feigned
> To be an ignoramus in our art,
> According to some preconceived design,
> And happed to hear the land's practitioners,
> Steeped in conceit sublimed by ignorance,
> Prattle fantastically on disease,
> Its cause and cure—and I must hold my peace!

in the letter of "The Arab Physician."

Speaking for my own specialty, I regret to say that fully one-third of the articles on medical zoölogy which I have found in the medical journals are unintelligible to the specialist—whatever may be the ideas they convey to the practitioner—largely because of the reckless use of technical terms.

It is always a good plan to submit your articles to a specialist or to your colleagues for criticism before you send them to press. Another good plan is to place your manuscript—especially if it is your first effort—under lock and key, from sixty days to sixty years (so that the ideas may not escape), the time of confinement varying directly in proportion to the importance you attach to the views you advance. If you feel convinced that your ideas are destined to revolutionize modern medical thought, sixty years is rather a short period of imprisonment for your manuscript; while if, in your early articles, you "decide" that "no such disease exists as hydrophobia," that "the claims which the advanced members of the profession make for antitoxin are absurd," that "Harvey did not use vivisection in studying the circulation of the blood," or if you suddenly "come to the conclusion that "Koch's discovery of tuberclin is useless" and that "no good has ever come from animal experimentation," then imprisonment for life, or even capital punishment, would not be too severe treatment for your manuscript, and possibly for the author also.

Be careful about your language in writing. It is always better to say that you believe an author is "in error" (let it be Pasteur, Koch, Claude Bernard, Laboulbène, Blanchard, Welch, Sternberg, or Salmon) than to say that his "statement is false." In either case the reader will simply take your assertion as meaning that there is a slight difference of opinion upon the subject in hand, and the more modestly and delicately you express your own view on the subject, the more weight your article will have with those who read it.

So much for your opportunities to aid zoology. I now wish to make a suggestion concerning "bread-pills" from the standpoint of a non-practitioner and occasional patient. It is generally supposed by young graduates that it is always best to look wise and administer "bread-pills" in case you are in doubt as to diagnosis and treatment. To make this rule absolute is, I believe, a serious mistake. I maintain that bread-pills are perfectly justifiable, but that they have their place. In many cases they may work upon the imagination and thus lead to speedy recovery, while there is a chance that a more heroic treatment might result otherwise. There are some people, however, who believe that an honest confession of ignorance and a willingness to study the case are occasionally better than a show of knowlege; and if any of you ever enter abstract science, this is the first lesson you will be obliged to learn. I would therefore respectfully suggest, from the standpoint of certain patients—possibly the minority—that you study human nature and take into account the temperament, as well as the temperature of your patient; that you keep a large supply of bread-pills on hand; that you give them freely, though not free, to all patients who need them, but give to yourself, at the same time, assurance and vows of faithful study of the case. You should educate your patients, as well as yourselves, to the truth that it is often more important to decide what to proscribe than what to prescribe.

What I have said thus far applies to the entire class, and now I have a closing word of advice to give to about five or ten per cent. of the class, *i.e.*, experiment. Advance in medicine is suggested by observation; it is made by experimentation. All practitioners are capable of observing, some are capable of experimenting. Certain conditions, however, must be complied with before you essay experimentation. I refer, first of all, to a thorough knowledge of the literature upon the subject you wish to investigate, so that you may know the successes and failures of former investigators in that particular line. In the next place, perform your first experiments under the direction of some experienced investigator; and finally, and most important of all, hold fast to the view defended by the humane profession you have just entered, *i.e.*, that a human life is worth more than the lives of all the stray dogs within the field of your observation. Establish results by animal experimentation before you try theories on human beings, and, if a short-sighted, sentimental, and medieval policy at the end of the nineteenth century results in legislation which will seriously hamper or prevent such experimentation in one part of a civilized country, move to another place, rather than risk human lives in experiments which can be performed elsewhere upon the lower animals.

Finally, gentlemen, on behalf of the faculty I desire to thank you for your faithful work these past four years and to wish you all the success possible in your practice. While in practice, do not lose sight of the fact that the principle of the "survival of the fittest" holds in the medical profession, as well as in the "origin of species." If you wish to survive as one of the fittest, it must be by an honorable and professional "struggle for existence." In the time of your successes and reverses do not, however, forget your Alma Mater, for she will always have for you a word of welcome, of comfort, and of praise.

SOCIETY PROCEEDINGS.

THE AMERICAN DERMATOLOGICAL ASSOCIATION.

Twentieth Annual Meeting, held at Hot Springs, Va., September 8, 1896.

DR. A. R. ROBINSON of New York, the President of the Association, delivered the annual address. After welcoming the members he announced the death, since the last meeting, of one of the Society's oldest, ablest, most active members, Dr. Edward Wigglesworth of Boston,

and spoke of his genial and courteous bearing, of which the members had so distinct a recollection. To some he was a well-proven friend, and to all an honored and admired colleague, whose absence from the Society's meetings will be sadly felt. The question of the rightful territory of the dermatologist was then discussed, and the effort was made to show to the general profession that cutaneous diseases are much more numerous and complicated than is usually supposed, while some are dangerous to the subjects thus afflicted. It would seem, therefore, that a more prominent position should be accorded dermatology in the college curricula.

In discussing the President's address, Dr. WHITE said that for several years Harvard University has required study in dermatology, both theoretically and practically. The examination is rigorous, and at times excludes from the degree.

Dr. DUHRING thought notice should be taken of the advances which had been made in a few of the universities. In the University of Pennsylvania the student is marked on the same basis as in anatomy and surgery.

Dr. JACKSON said that for several years Columbia College students had been required to pass an examination in diseases of the skin, and after the present year would be required to take a course of twelve lessons yearly. Dr. Morrow said that six years ago instruction in dermatology was not compulsory in any college in this country. The statements of the speakers were, therefore, of much satisfaction.

G. T. JACKSON, M.D., of New York, presented a paper entitled

PAGET'S DISEASE OF THE NIPPLE,

and described a case of a woman, fifty-two years of age. The disease developed from what seemed at first to be a simple dermatitis into a clear case of Paget's disease, within fifteen months. No cause was discoverable. The breast was amputated by Dr. B. F. Curtis, and the patient made a good recovery. After nine months the patient was seen again, and showed no symptom of return of the disease in any way. Histological examination of the removed gland showed the presence of a non-cancerous tumor in the breast, which the pathologist, Dr. Ely, thought might have been the origin of the disease of the nipple. On the second visit of the patient it was found that she had a tumor in the remaining breast. Dr. Jackson urged the advisability of amputation of the breast in all cases of Paget's disease as soon as a positive diagnosis was arrived at. He did so on account of the exceeding rebelliousness of the disease to treatment and its proneness to the development of cancer.

Dr. FORDYCE opened the discussion by differing from the views upon the pathology as given in the report of the pathologist who had studied Dr. Jackson's case. It would seem that a fibrous growth existed in the breast before the areolar disease showed itself. We are led to believe that the disease begins in the epidermic cells, results in a peculiar degeneration in the protoplasm, and extends along the galactiferous ducts.

Dr. BOWEN also disagreed with the pathologist's views that the skin lesions were secondary if this is to be regarded as a true example of Paget's disease.

Dr. DUHRING said the skin affection was here practically identical with eczema in the early stage. If seen some years later an entirely different diagnosis might be made, the eczema-like element having disappeared or become overshadowed by the epitheliomatous development. He had suggested the designation *Eczematoid epithelioma* since almost all cases eventually became epitheliomatous.

Dr. WHITE did not think the case described could be looked upon as Paget's disease, either clinically or pathologically. Excision of the breast should always be advised in Paget's disease, if improvement does not take place promptly from the use of ordinary remedies.

Dr. ROBINSON thought there might here have been a fibroma with nipple eczema as an accidental combination. He did not see that any connection had been shown between the two processes.

L. A. DUHRING, M.D., of Philadelphia, presented

A PATHOLOGICAL AND CLINICAL CLASSIFICATION OF THE DISEASES OF THE SKIN.

A printed table showed the diseases arranged in nine groups. The classes made were: (1) Anemias; (2) congestions; (3) inflammations; (4) hemorrhages; (5) neuroses; (6) hypertrophies; (7) atrophies; (8) new growths; (9) diseases of the appendages of the skin, divided into disease of (*a*) the sweat glands; (*b*) sebaceous glands; (*c*) hair follicles, and (*d*) nails. The structures composing the appendages of the skin, especially the follicles, hair, and nails, are subjected to such varied forms of disease that it is found eminently proper and useful to bring them together. Differing from the writer's previous work in the same direction there is an omission of all etiology in the make up of this classification which is based rather on pathology, histopathology, and anatomy.

Dr. WHITE did not see how we could ignore the etiological element in a system of classification. It seemed to him more important than an anatomical classification. The position accorded various diseases was criticized, as was the entering of the same disease under two different classes, which was apt to confuse the student.

Dr. MORROW thought all admitted that an etiological would be the ideal classification, and it seemed a step backward to ignore etiology entirely. He regarded the task of making a satisfactory classification impossible.

Dr. ALLEN thought it a reproach to American dermatology, and to the Association, that we had to rely, in our work, upon an alphabetical list of skin diseases. The argument that because a satisfactory classification could not now be made none should be attempted was not sound. There probably never would come a time when views regarding the nature of diseases would not be in a state of transition. He hoped Dr. Duhring would persist in his efforts to give as good a classification as is now possible. Dr. Robinson said that Dr. Duhring's original classification was the more useful. The attempt to arrange the diseases in this manner was correct, and as good a basis as was at our disposal at the present time.

J. A. FORDYCE, M.D., of New York, reported a case of

PECULIAR AFFECTION OF THE MUCOUS MEMBRANE OF THE LIPS AND MOUTH,

in which the mucous membrane of the lips and inner sides of the cheeks was the seat of numerous, closely aggregated milium-like bodies.

The affection began two years previously and had progressed in a symmetrical manner since that time.

On superficial examination, the normal vermilion-color of the affected region seemed to have been replaced by a light yellow tint. When the parts are put on the stretch the individual lesions composing the patch were plainly visible.

A portion of tissue from the oral cavity, excised for microscopic examination, showed a degenerative process in the protoplasm of the epithelial cells. The muciparous glands were not involved.

A colored drawing and several photomicrographs were shown in connection with the report.

DR. HARDAWAY of St. Louis, presented the photographs of a case of

ARSENICAL PIGMENTATION,

Distributed over the anterior and lateral aspects of the trunk and extremities. In another case the lower portion of the thighs, and the anterior of the trunk were exempt.

DR. ALLEN of New York, presented a new comedo extractor, with pustule lance attached. The advantage being that one instrument, instead of several, was sufficient for the various steps in acne work. By a forceps-like device, lateral pressure and a squeezing or massage of the skin could be carried out.

J. MCF. WINFIELD, M.D., of Brooklyn, read the next paper, entitled

A FAVUS-LIKE ERUPTION OF THE ORAL MUCOUS MEMBRANE, CAUSED BY THE ASPERGILLUS NIGRECEUS.

The patient was a woman twenty-seven years of age, who had never had any serious illness. Two weeks before she had noticed "a small ulcer" in the middle line of the roof of the mouth. It occasioned no pain or discomfort only when irritated by some hard substance in eating. The patch slowly increased and another formed in front of it, and others subsequently developed. An antisyphilitic course had shown no good results. Antiseptics had also been applied. Favus was suspected. When first seen by the reporter there was an edematous, lumpy patch on the left side of the mouth, from the incisors to within an inch of the soft palate, with outlying smaller patches. A firmly attached dirty-yellow deposit covered the areas. Parts were grayish brown, the surrounding tissues were edematous. The picture suggested favus, or a beginning tuberculosis. The microscope disclosed a fungus differing from the achorion. The fibers showed no tendency toward fission. The manner of punctifying shows that the fungus did not belong to the oïdium but to the ascomycetous genus. It grew rapidly in cultures. Treatment directed to the prevention of the plant from bearing fruit, by applying peroxid of hydrogen in strong ethereal solution, proved effective. The case, so far as the writer could discover, is unique. The cause was supposed to be eating moldy cheese, for which the patient had a decided liking.

Referring to the differences in culture, the speaker said thrush gives a thin film, the trichophyton a cottony growth, and the *Aspergillus nigreceus* a grayish-brown mold.

DR. FORDYCE thought the case unique as well as interesting.

DR. DUHRING did not remember to have seen such a case. He asked if the membrane was adherent or easily removed.

DR. WINFIELD replied that considerable force was required, and caused slight bleeding.

In the morning session of the second day a general discussion was opened by J. C. WHITE, M.D., of Boston, upon the subject

WHAT EFFECT DO DIET AND ALCOHOL HAVE UPON THE CAUSATION AND COURSE OF THE ECZEMATOUS AFFECTIONS AND PSORIASIS?

The speaker said that at the International Congress, from which he had just returned, this important subject had scarcely been touched upon, one paper having been read upon the influence of vegetable diet in psoriasis. Observations have been so inexact that conclusions cannot be drawn from them. It is well known that there are disturbances of the skin which result from errors in diet, but they are, for the most part, fugitive and idiosyncratic. Food containing toxic properties is well illustrated in scorbutus and pellagra. In infancy, under the simplest and most uniform diet known, eczemas are prevalent and extremely obstinate. Eczema is occasionally provoked and kept up by acid fruits, but no specific articles of food were recognized as bearing upon the production of the disease. In eczema, the diet should be the same as in all ordinary inflammations. He does not recognize the influence of any so-called diathesis, and hence would deny the efficacy of systems of diet in eczema based upon an assumed curative effect in such imaginary diatheses.

(To be continued.)

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDED AUGUST 31, 1896.

PERRY, T. B., Passed Assistant Surgeon. Detailed to represent Service at meeting of American Public Health Association; August 24, 1896.

VAUGHAN, G. T., Passed Assistant Surgeon. Detailed for duty in connection with Immigration Service at Philadelphia, Pa.; August 25, 1896.

COBB, J. O., Passed Assistant Surgeon. When relieved from duty at Cincinnati, Ohio, to proceed to New York for duty; August 25, 1896.

STIMPSON, W. G., Passed Assistant Surgeon. Relieved from command of Service at Port Townsend, Wash., on arrival of Passed Assistant Surgeon S. D. Brooks; August 25, 1896.

SPRAGUE, E. K., Assistant Surgeon. When relieved from duty at New York to rejoin his station at Boston, Mass.; August 27, 1896.

CUMMING, H. S., Assistant Surgeon. When relieved from duty at Norfolk, Va., to proceed to Evansville, Ind., for temporary duty; August 25, 1896.

GREENE, J. B., Assistant Surgeon. To proceed from Baltimore, Md., to Cleveland, Ohio, for temporary duty; upon completion of which to rejoin station; August 25, 1896.

THE MEDICAL NEWS.
A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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ORIGINAL ARTICLES.

REPORT OF THIRTEEN CASES OF MULTIPLE NEURITIS OCCURRING AMONG INSANE PATIENTS.[1]

BY E. D. BONDURANT, M.D.,
ASSISTANT SUPERINTENDENT OF THE ALABAMA BRYCE INSANE HOSPITAL, AT TUSKALOOSA.

THE inflammatory-degenerative changes, which, occurring in the peripheral nerves, are generally described under the name of "neuritis," may be especially active in the nerve-sheaths and connective-tissue framework—"interstitial neuritis,"—or have their chief location in the nerve-fibers—"parenchymatous neuritis"—or, as is most often the case, may involve both the neural and connective-tissue elements—"diffuse neuritis." The causes of neuritis are many and varied, and, used as a basis of classification, give rise to a number of more or less easily recognizable clinical varieties of the disease, the most important being:

(1) The neuritis occurring as a result of direct injury to the nerve-trunk—wounds, blows, pressure, as from sleeping on the arm, from dislocation of bones, from tumors. (2) That form resulting from exposure to cold. When the trunk of the seventh cranial nerve is involved, as is often the case, we have here a familiar form of facial paralysis. (3) The forms resulting from direct extension to adjacent nerves of the infection of bacterial diseases, as pneumonia, diphtheria, tuberculosis. (4) Those forms due to the presence in the blood of the poisons of these infectious diseases, especially syphilis, diphtheria, typhoid fever, malaria, variola, and tuberculosis. (5) The varieties resulting from introduction into the blood of toxic agents from without, as alcohol, arsenic, lead, opium. (6) The endemic or epidemic forms frequent in Asia and the islands of the Pacific, as the "kakke" of the Japanese and the "beriberi" of the Malay peninsula. (7) Certain forms affecting especially the cutaneous nerves and accompanied by trophic disorders of the skin in area supplied by the diseased nerve, of which herpes zoster is a familiar example.

Whatever the cause of the neuritis, or its pathological variety, if it involves a single nerve or a small group of adjacent nerve-trunks, it is called "simple neuritis"; if a number of nerves in different portions of the body are simultaneously affected, "multiple neuritis." The varieties referred to in 1, 2, 3, and 7 above are usually "simple"; those in 4, 5, and 6, are apt to be "multiple." To these rules, however, there are exceptions. Thus, the writer has seen one case of typical peripheral neuritis (or pseudo-tabes) due to pressure upon the lumbar and sacral nerves of a large aneurism of the abdominal aorta; on the other hand, general toxemia may cause localized effects, as has been observed in one case here, where, in consequence of the therapeutic employment of arsenic, a herpes zoster occurred. A simple neuritis is also apt to be interstitial; a multiple neuritis, parenchymatous.

Since some confusion exists in the minds of many as to the relation borne by the different forms of neuritis to one another, and as to the proper naming of the several forms, it may be well to state that "multiple neuritis," "peripheral neuritis," and "polyneuritis" are synonymous terms, and that "alcoholic neuritis," "malarial neuritis," "syphilitic neuritis," "pseudo-tabes," etc., are all forms of multiple neuritis.

At the Insane Hospital, during a period of ten years, ending February, 1895, there occurred not more than a half-dozen cases of multiple neuritis, and all of these, with two exceptions, were of the alcoholic or syphilitic variety, the exceptions being the polyneuritis in the lower extremities, due to compression of aortic aneurism, to which reference was made above, and a case occurring in a negro man, who, while much excited, stamped his bare feet upon the floor until both were much inflamed, a neuritis following as a probable result of the injury.

In February, 1895, a case of multiple neuritis developed in a white female patient without assignable cause, and in the past autumn and winter—from November, 1895, to February, 1896, twelve other cases of multiple neuritis occurred. These cases were distributed irregularly through the several wards and departments of the institution, four of them occurring in white men, eight of them in white women, one in a colored woman, the population of the Hospital numbering about twelve hundred.

[1] Read (by title) at the meeting of the Medical Association of Alabama, at Montgomery, April 21 to 24, 1896.

A brief memorandum of the thirteen cases is appended for reference:

I.—A white woman, aged thirty-two, imbecile, healthy, well-nourished. Without discoverable cause, a neuritis developed in nerves of lower extremities, extending to middle of thigh, the symptoms being pain, sensory perversions, muscular weakness and incoördination, becoming in ten days a complete motor paralysis of affected part, with inability to walk or stand and characteristic "foot-drop," trophic disturbances—some edema and a scattered herpetic eruption on legs—absence of patella reflex. There was in the beginning slight rise of temperature, restlessness, furred tongue, offensive breath, and some gastro-intestinal disturbance. After a month or two, muscular atrophy became marked, and in course of time the calves of the legs diminished to about half their former size. Electrical reactions at this time: Markedly diminished excitability to galvanic as well as to faradic current, without a typical reaction of degeneration. After remaining at a standstill for four months, patient began improving, and now (six months after attack developed) has partially regained power over muscles in the legs, although still unable to walk or to stand. She is slowly improving, and will probably recover entirely.

II.—White woman, aged forty-six, demented many years, well-nourished and in good bodily health, developed what was at first regarded as a malarial attack—chill followed by rise of temperature. A day or two later began complaining of pains in legs, with weakness, and became unable to walk. She showed the usual sensory disorders, absence of patella reflexes, muscular paresis, incoördination, etc., followed after a few weeks by atrophy of muscles of legs. She remained helplessly in bed for two months, then slowly regained use of the limbs, and now (five months after onset of attack) is practically well, although the legs are still smaller than formerly, and she is somewhat unsteady in her gait. Reflexes have not returned.

III.—White woman, aged forty-three, terminal dementia, physical health good. Had a "bilious attack" (or auto-infection fever) lasting a week, with nausea, anorexia, furred tongue, headache, offensive breath. She recovered entirely from this and remained out of bed a week; then began complaining of pains in her legs, of weakness, and of inability to walk. Soon grew unable to stand or to use limbs at all; feet and legs became edematous and intensely painful and hyperesthetic; patella reflex vanished; no fever nor constitutional disturbance. Some muscular atrophy supervened, and a typical reaction of degeneration could be obtained in affected muscles within a month from the time the disease appeared. After two months she began improving, and now (four months from onset of attack) is able to walk and suffers no pain. Still has some muscular incoördination and reflexes have not returned.

IV.—White man, aged thirty-five; epileptic since infancy, and mental faculties disordered for many years; anemic, emaciated, and nephritic. He took to bed with gastro-intestinal symptoms and a slight rise of temperature, followed by pain, sensory perversions and muscular weakness in legs, with loss of patella reflex. He was never entirely paralyzed, muscular atrophy was not marked, and after two months he was able to walk again. Reflexes are still absent after five months.

V.—White man, aged thirty-three; epileptic since childhood, imbecile and demented, but healthy and well-nourished. Without assignable cause, and without any pronounced constitutional disorder, legs became weak and unsteady, painful, edematous, and patella reflexes disappeared. He was unable to walk for several weeks, then slowly improved, and after two months was able to get about as usual. Muscular atrophy slight.

VI.—White woman, aged twenty-six; hysterical mania, with dementia. Health good, body well-nourished. Beginning with a mild auto-infection there was rise of temperature to 101° F. on second day, she developed pain and tingling sensations in legs, with muscular weakness and absence of reflexes. She remained in bed one week only, then became able to walk again, improved steadily, and in two months had practically recovered.

VII.—White man, aged thirty-eight. Chronic melancholia with dementia; anemic, nephritic, and poorly nourished. Neuritis developed in lower extremities without visible cause, the symptoms being pain, sensory disorders, weakness, absence of reflexes, etc., as in the other cases, together with some gastro-intestinal disorder. At this time (three months after onset) patient is partially recovered, but is in bed a part of the time and legs are weak and smaller than before.

VIII.—White woman, aged forty-five. Chronic mania engrafted upon a paranoiac disposition. Previous health good. After three or four days of malaise, rise of temperature to 100° F., gastro-intestinal disorder, etc., local symptoms of neuritis in nerves of legs and lower half of thighs appeared, with burning pain, sensation as of "ants crawling on legs," "as if legs were asleep," edema, tenderness, muscular weakness, etc. She was never entirely paralyzed, pain grew less after a few days, and she retained power of locomotion throughout, although showing a markedly ataxic gait. Patella reflex abolished. Later, distinct muscular atrophy and a partial reaction of degeneration were noted. Gradual recovery of power in legs and restoration of reflexes in five months.

IX.—White woman, aged thirty-three. Epileptic since childhood and demented for ten years. Previous health good. Underwent the "Flechsig opium treatment" for epilepsy—opium in slowly increasing quantity given for a month, suddenly withdrawn, and potassium bromid in large doses substituted. Fits stopped, but about two weeks after withdrawal of the opium, patient having for some days shown gastro-intestinal and

auto-infection symptoms, a neuritis developed in lower limbs, all symptoms more marked on one side than on the other. The pain was a prominent feature for several weeks, and, later, muscular atrophy became pronounced. After a month symptoms of neuritis developed in both forearms, and after this both foot- and wrist-drop were present. Reflexes abolished. Patient grew steadily weaker, emaciated, became stupid, lay in a semi-comatose state for days, had persistent constipation, furred tongue, sordes on lips and teeth, offensive breath, anorexia, no rise of temperature, but toward close (six weeks after onset) temperature became subnormal; no difficulties of respiration nor cardiac irregularities noted. Died seven weeks after beginning of the attack.

X.—Colored woman, aged thirty-six, imbecile; previous health good. Had an attack of "continued fever" (which was probably tubercular) lasting five weeks. Recovered and was up and able to move about for a week; then developed a violent neuralgic (?) pain in chest, and in a day or two exhibited typical symptoms of neuritis in lower extremities, and a few days later in nerves of arms and body (intercostals) also. Temperature became subnormal. She grew weaker, experienced great difficulty in respiration, and died of asphyxia, without cardiac irregularities, three weeks after disease first appeared. Autopsy showed general miliary tuberculosis, involving pia mater, as well as all internal organs.

XI.—White man, aged thirty-four. Epileptic convulsions for five years past; mental weakness noticed during four years. Health good; muscular and well-nourished. With fever and the frequently noted gastro-intestinal disturbance, the pains, sensory abnormalities, and muscular paresis characteristic of neuritis developed in the arms first, slowly thereafter in the legs, rendering patient nearly helpless. Wrist- and foot-drop marked. The pain was severe from "top of head to sole of foot," as he said; hyperesthesia and absence of reflexes also noted; some edema; later, some muscular atrophy. After four weeks he began suffering from dyspnea and cardiac irregularities, temperature became subnormal, and he died two months after the onset of the disease, of cardiac failure and asphyxia (involvement of pneumogastric, probably).

XII.—White woman, aged forty, utterly demented for many years. Previous health good. The nurse noticed that she seemed indisposed to move from place to place, and that when necessary to move she would get down on the floor and crawl like an infant. Examination showed absence of patella reflexes, inability to stand or walk steadily, sensory perversions, edema, incoördination of movement. Patient was too demented to complain of pain if she experienced any. She showed no constitutional disorder, and refused to remain in bed. She regained the use of her legs after two months. Reflexes were absent after five months, and some atrophy is still apparent, although she walks fairly well.

XIII.—White woman, aged fifty-six. Chronic mania, with great excitement and turbulence. Nephritic, emaciated, and in feeble health, with frequent diarrhea, progressive emaciation, and exhaustion from excitement. After being excited for two weeks she became helpless, and upon examination the usual evidences of neuritis were discovered in the lower extremities—muscular weakness, absence of reflexes, pain and tenderness, inability to stand. Trophic disorders were more prominent than in the other cases—edema and a herpetic eruption, and later a crop of small boils. The neuritis was confined to the legs. Patient died of exhaustion and nephritis about two weeks after disease developed.

It will be noted that the neuritis affected the lower extremities in every one of the thirteen cases, and the lower extremities alone in ten of the cases. The other three cases, in which the nerves of the arms and body became involved, all proved fatal although only one of these fatal results could be attributed directly to the neuritis (Case XI). One of the other cases died of miliary tuberculosis, the third of auto-infection, although death in each case was doubtless hastened by the neuritis. In one case the neuritis developed in course of a miliary tuberculosis, in one it followed a "bilious attack," in one the "Flechsig opium treatment" for epilepsy, in one a doubtful malarial infection; in none of the other cases could a reasonable guess at a cause be made.

The patients were young or middle-aged, and had been insane and in the institution some time; four were epileptic; all were demented more or less; none had used alcohol, and in only one case was a (doubtful) history of syphilis obtained. In most of the cases there was some evidence of an acute general toxemia, usually noted a day or two before the local symptoms attracted attention. In at least three cases, however, symptoms of general disease were lacking. No marked effect upon mental state nor upon the course of the insanity was noted in any instance. An examination of the urine of about three-fourths of the cases was made after the acute stage was passed, without discovering any indication of increased renal irritation, the urinalyses, as a whole, giving the same result as had been obtained at examinations made before the neuritis developed.

Why, after so many years of immunity, we should have a dozen cases of peripheral neuritis within a few months, is not clear, unless we assume the existence of some endemic cause, absent from our locality up to last year, such as is supposed to be active in beriberi—some germ or other

source of infection. Excess of starchy food has been assigned as a cause of endemic neuritis, but here the food of the patients does not show an excess of carbohydrates, and the quality and kind of food has been practically the same for years. Infection also is not clear. While four of the cases occurred in one ward, they all developed about the same time, and no other cases appeared; the remaining nine cases were widely scattered. The summer and autumn of 1895 was, it is known, a sickly season, malarial diseases, among others, abounding. While our neuritis cases, with one exception, obviously did not follow malarial infection, the causes favoring the growth of the malarial germ in the South may have also been favorable to the development of the etiological basis of endemic multiple neuritis. The blood of several of the neuritis patients was examined for the malarial plasmodium, without success. Although cases of multiple neuritis among the general population of the State have not come to my notice, I am informed by Dr. P. T. Vaughan, assistant physician at the Arkansas State Asylum for the insane, at Little Rock, that a number of cases of multiple neuritis occurred among the insane patients at Little Rock about the same time we were experiencing the epidemic at Tuscaloosa, indicating that the cause, whatever it might be, was widely diffused, rather than local or peculiar to the Alabama State Hospital. Several of our cases showed the auto-infection symptoms—dryness of tongue, offensive breath, emaciation, etc., seen in the dry or atrophic form of kakke or beriberi.

A fairly representative composite clinical picture of the disease, drawn from the cases we have seen, is the following:

After a period of malaise, lasting from a few hours to several days, with the discomfort common in the prodromal stages of acute disease, sometimes with a distinct chill, usually with a rise of temperature, together with anorexia, dryness of mouth and throat, furred tongue, offensive breath and constipation, the patient begins complaining of pain in the affected part, the legs most often. The pain is often quite severe, is darting and shooting, or burning, boring, aching, stinging, or "like ants biting," as one patient expressed it. Muscular weakness and incoördination is then noticed, and other sensory disorders appear, as diffuse or irregularly distributed areas of hyperesthesia or (rarer) anesthesia; tenderness on pressure is common, sensations as of "bugs crawling on the legs," "as if the limbs were asleep," are also mentioned. The tendon or deep reflexes are also abolished (noted in all of our cases). The muscular weakness increases in severity, the gait becomes ataxic, patient is unable to get up and down steps, unable to stand steady with eyes closed; the weakness may become only a paresis, but in many cases there is almost complete paralysis at the height of the attack, with the characteristic wrist-drop or foot-drop. The sensory disturbances subside after a longer or shorter time, the motor weakness is more persistent. Trophic derangements, appearing at a later stage than do the sensory and motor disturbances, are also frequent, as edema, eruptions, sores, discoloration, etc., of the skin, or, more rarely, a herpetic eruption, or even a typical herpes zoster. When the motor paralysis becomes well-marked, there is always atrophy of the muscles supplied by the affected nerves, this becoming, in some instances, very marked. Contractures may result. There are then also changes in electrical reaction, either a diminution in galvanic, as well as faradic excitability, or a partial or complete reaction of degeneration.

The disease progresses in intensity for a period ranging from a few days to some weeks, then remains stationary for a shorter or longer time, then slowly disappears, pain first, motor weakness next, reflexes last returning. There are all grades of severity and duration, from a mild paresis, disappearing in a few weeks (Case VI) to paralysis of some months' duration (Case I), or the disease may cause death, as in Case XI. Usually the peripheral extremities only of the nerves are affected, the disease extending to the middle of the arm or to the middle of the thigh, as a rule. In the severer cases, and possibly in a few of the milder grade, the inflammation extends quite to the cord. While the great majority of cases recover, the disease often proves a serious one, as is shown by our three fatal cases among thirteen. Death, when directly owing to the neuritis, as in Case XI, is generally due to participation of the pneumogastric and other respiratory nerves in the disease, death occurring from asphyxia or from failure of the heart.

The diagnosis of peripheral neuritis, save in the cases pursuing an atypic or unusual course, is not a matter of difficulty, the rapidly developing motor weakness, incoördination, loss of tendon-reflexes, together with the pain, perversions of sensation, and trophic phenomena offering a characteristic clinical picture. Very mild cases might be overlooked, the slight pain and muscular weakness not attracting sufficient attention to suggest an examination of the affected limbs, or being attributed to "neuralgia" or "muscular rheuma-

tism," etc. In the severer cases also, the local manifestations may be overshadowed by the marked constitutional disturbance—fever, general prostration and weakness, auto-infection symptoms, etc., but in this, as in the first instance, if an examination of the nerve-reactions is made, there will be little opportunity for error.

The symptoms of poliomyelitis anterior, or infantile spinal paralysis, resemble somewhat those of multiple neuritis. Poliomyelitis, however, is preëminently a disease of infancy and early childhood, and is usually a purely motor paralysis, lacking the sensory disorders of neuritis.

Acute ascending or Landry's paralysis resembles a polyneuritis in many particulars; in fact, many of the symptoms of Landry's paralysis are due to involvement of the peripheral nerves, and some of the reported cases of Landry's paralysis are most probably cases of multiple neuritis; in fact, some (Ross) have insisted upon the identity of the two diseases. The chief differences noted in typical cases are: Landry's paralysis is usually a motor one, the pain, trophic disorders, etc., of neuritis being absent; it advances more rapidly than neuritis, the muscles do not atrophy, and the reaction of degeneration is not present.

When a polyneuritis involves the lower limbs alone, and is of slow onset and progress, as is often seen in cases due to alcohol or syphilis, the disease bears a close resemblance to tabes dorsalis or locomotor ataxia, and well deserves the name of pseudo-tabes, which has been applied to it. The symptoms common to the two diseases are: The pains in the legs, the sensory perversions, muscular incoördination, ataxic gait, swaying with closed eyes, absence of tendon-reflexes. The differences are: The girdle-pain of tabes is not present in neuritis; the lancinating, stabbing pains of tabes are not common in neuritis; the pain in the last-named being continuous, burning, stinging; the pupillary-light reflex, absent in tabes, is not changed in neuritis. There is loss of coördinating power in both diseases, but in tabes there is, at least in early stages, no muscular weakness, while this weakness is marked in neuritis; the "crises" of tabes are absent in neuritis. Thus, in typical cases the differences are sufficiently prominent. In some atypic instances, however, it becomes a matter of no small difficulty to decide between a neuritic pseudo-tabes and a true tabes—a fact not surprising when the pathology of the two is borne in mind. The nerves are usually affected in tabes, and many of the symptoms of tabes are obviously those of the accompanying neuritis; in fact, it has been claimed that locomotor ataxia is a primary affection of the peripheral sensory neuron.

The treatment of multiple neuritis is, first and most important, removal of the cause, if such is discoverable and removable—withdrawal of the alcohol, opium, arsenic, lead, etc., treatment of the syphilitic, malarial, or other infection.

For the neuritis itself, there is no specific. Of drugs, quinin and the salicylates are most often recommended. For the relief of the pain, the most distressing single symptom, coal-tar derivatives or, preferably, opium, may be given. The steady galvanic current is sometimes of service; hot applications give much relief in some cases—hot water, hot flannels, hot poultices. After the acute stage is passed, the aim is to minimize the muscular atrophy and prevent contractures, and to restore muscular power as soon as possible. This is best done by the systematic use of electricity (faradic current) and massage. In the large majority of cases recovery is complete, although from several months to a year, or even longer, may be needed

STERILITY IN WOMEN.[1]

By G. BETTON MASSEY, M.D.,
of Philadelphia.

Aside from congenital deficiencies and anomalies of development of the essential organs of generation, we have been taught, since the days of Marion Sims, that the chief reason for sterility attributable to the woman is narrowness or flexion of the uterine canal. When it is remembered that the narrowest pin-hole os, on careful manipulation, will admit a sound, which is many times larger than the self-propelling spermatozoid, it would seem that this reasoning is inconclusive. It is doubtless to the operative furor that the popularity of the stenosis and atresia theory of sterility is due, for since the days of Sims and J. Y. Simpson, practically no form of treatment has been employed except some method of enlargement of the canal. This was at first accomplished by slitting the cervix. Owing to the combined ineffectiveness, morbidity, and mortality, of this procedure, it has, of late, been superseded by so-called dilatation, which is accomplished only by tearing apart the muscular and fibrous tissues that encircle the canal. Only exceptionally has this accomplished a cure of the sterility, while it is at times followed by serious consequences in the shape of parametritis and diseased appendages. One case of ectopic pregnancy, and a number of instances of uterine and

[1] Read before the Philadelphia Obstetrical Society, September 3, 1896.

ovarian tenderness, have been observed by me after dilatation.

Far more important causes of sterility may be found in imperfect participation of the uterus in the sexual orgasm, catarrhal changes in the mucus of the uterus and tubes, and inactive ovaries—the last two being the most important. A lessened aspiratory action of the uterus, while rendering conception less certain, cannot be a serious impediment on account of the automobile powers of the spermatozoids. This defect may, however, be materially lessened by the general intrapelvic action of electricity, promoting the nerve-tone of the organs, particularly of the uterus and ovaries, increasing muscular activity, and quickening circulation. The method best adapted to accomplish this purpose is the vagino-abdominal galvanic application with covered vaginal electrode, which should be negative, a current of from thirty to forty milliamperes being turned on and off gradually and repeatedly by the swelling method. This may be supplemented with labile lumbar applications of the galvanic current to the sexual center of the cord, the patient lying upon the face with a large pad under the abdomen.

Of the toxic effect of altered uterine secretions on the fertilizing cells of the semen there can be no question, and it is in these cases that galvanic electricity, applied within the cavity of the uterus, is of the greatest service by its alterative action on the secreting surface. Unless the intrauterine treatment is indicated also by marked changes in the mucous membrane, the covered elastic electrode is best as promoting favorable changes in the mucous membrane with least traumatism. It has been my habit to employ the positive pole usually, though the choice of pole for this purpose is open to further investigation to determine whether the normal alkalinity of the uterine mucus should be increased by the negative pole or diminished by the positive pole. Possibly the results depend rather on the simple excitation of a more normal secretion.

Deficient activity of the ovaries can only be inferred as a cause of sterility, in the absence of any demonstrable lesion or more patent defect of functionation on the part of the woman, and, of course, after the question of the possible sterility of the husband has been eliminated. It may or may not be associated with lack of sexual appetence and responsiveness, for many women conceive readily in whom the orgasm is deficient or absent. Any method of treatment that promotes increased activity of the pelvic circulation, such as negative vagino-abdominal applications of either current, may increase ovulation, while the musculo-tonic effect of the galvanic current, by the swelling method, may do much to lessen a practical maternal impotence from weakened musculation, which is only less disastrous to the conjugal relation than similar conditions of the male.

But few instances of this affection have been placed under my care for the purpose of curing the sterility—but five in all—in four of which the treatment outlined was successful at some time during a year following the cessation of the treatment, two instances being almost immediate. In the one case that was a failure up to the date of her last report to me, the ovaries were both prolapsed and the tubes also probably involved in the remnants of an old pelvic inflammation. Her symptomatic condition was nevertheless improved.

The slight attention paid to this subject is doubtless due in part to a lack of information as to the value of this method in certain cases, and, in part, to a prevalent disinclination of American women for the burdens of maternity. That electricity may cure sterility, when the patient only seeks relief from the pain of chronic metritis, is abundantly shown by a tabulated report made by the writer to the American Electro-therapeutic Association in 1894,[1] where, of thirty-two cases of uterine disease that involved, in each instance, at least a temporary or acquired sterility, eight had become pregnant after the treatment. Apostoli, at the same meeting, reported pregnancy in eighty cases after intrauterine electric treatment, some after one application. Of the twenty-two cases reported *in extenso* in the paper,[2] five were nulliparæ.

An interesting case of this sort was sent to me in August, 1892, by Dr. Whitcomb of Greenwich, N. Y. She was a lady, twenty-nine years of age, who had been married five years without the least sign of pregnancy, but who came to me for a hemorrhagic menorrhalgia, which she had suffered from both before and since marriage. The only perceptibly abnormal conditions were a slight leucorrhea, and an enlarged corpus uteri, the cavity being three inches in depth. Under positive intrauterine applications she improved rapidly, the applications finally being made but once a month. About this time I was surprised by what appeared to be a very painful period, accompanied by clots, and counseled a waiting policy for some months to determine what her condition would be without treatment. At her next visit, some two and a half months later, she stated that the following period had been painless and normal, but that she had seen nothing since then. An

[1] "Trans. Amer. Electro-therapeutic Assoc.," 1894, p. 78.
[2] "Trans. Amer. Electro-ther. Assoc.," 1894, p. 371.

examination gave rise to a strong presumption of pregnancy, then existing, and convinced me that the painful period of some months back had been a miscarriage inadvertently brought on by the treatment preceding it. She was sent home this time without treatment, and in due time gave birth to an unexpected but much-desired daughter.

URETHRAL AND VESICAL ARTHRITIS.[1]

By A. H. LEVINGS, M.D.,
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Urethral arthritis, more often, but incorrectly termed gonorrheal rheumatism, is of not infrequent occurrence, usually making its appearance during the decline of gonorrhea, or during the continuance of a gleety discharge. The inflammation may be confined to the synovial membrane, and be attended with pronounced effusion. It is more usual for a distinct arthritis to occur, synovial membrane, subsynovial connective tissue, capsule, and ligaments, being involved. Should suppuration within the joint occur, the cartilages and bones may be involved and destroyed. Inflammation of, and effusion into, the tendon-sheaths are also of frequent occurrence, and are of importance as diagnostic symptoms. Urethral arthritis occurs during the later stages of a gonorrhea, or during gleet, on account of the inflammatory destruction of the mucous membrane, or its epithelial lining, which produces the gonorrheal ulcers in the posterior urethra, and affords ready access for the germs or their ptomains to the lymphatic or venous circulation.

Some bacteriologists claim that the gonococci are the direct cause of urethral arthritis; that these germs gain an entrance to the lymphatics or venous circulation through ulceration in the urethra, and are carried to the joint, where they set up their characteristic inflammation. Others hold that the process is one of mixed infection, the gonococci, by destroying the epithelial lining of the urethra, simply preparing the way for absorption of the pyogenic or pathogenic germs, which are known to inhabit the urethra under normal conditions, or which may be introduced mechanically. If the inflammation is confined to the synovial membrane, and the exudate is serous in character, statistics show that in thirty-five per cent. of the cases, recovery takes place with complete restoration of the functions of the joint. If the inflammation attacks all the structures of the joint, and the exudate is sero-fibrinous, sixty-five per cent. will be attended with restriction or complete loss of motion. If the exudate is purulent, more or less destruction of the joint is almost certain to follow, the condition probably necessitating resection.

In seven cases, which have recently come under my care, in two the hip was implicated, one the knee, one the knee and shoulder, one the metatarsal, one the metacarpal, and one the ankle-joint, and in 299 cases tabulated, the duration of the articular inflammation averaged sixty-eight days. Gonorrheal rheumatism is put down by Gresolle at $2\frac{4}{5}$ per cent. of all cases of gonorrhea.

Urethral arthritis is a typical infective arthritis, and in its symptoms and course is to be differentiated, especially from acute rheumatism for which it is often mistaken. Its chief characteristics are that it attacks but one, or at most, but few joints, those of the knee, shoulder, ankle, or the metacarpo- or metatarso-phalanges, being most frequently affected. It has a less abrupt onset than acute rheumatism, but far greater persistence. The pain attending it is often more severe than in the most aggravated case of rheumatism. The inflammation implicates most frequently all the structures of the joint, instead of being confined to the synovial membrane, as is the case in acute rheumatism. Inflammation of and effusion into the overlying tendon-sheaths are also prominent characteristics, and may continue for weeks, or months, or perhaps years, uninfluenced to any great extent by internal medication, and followed, in prolonged cases, by decided anchylosis, due to the organization of the fibrinous exudate binding the various structures of the joint together. Suppuration is uncommon, occurring only twice in ninety cases tabulated by Nolan. Osler relates a case where the patient was practically bedridden for ten years from gonorrheal rheumatism.

The following cases, which recently came under my observation, may be of interest:

Case I.—S. J., aged twenty-nine, confessedly having had gonorrhea, followed by a gleety discharge and cystitis, was attacked, August 30th, with sickness at stomach and dizziness; the second day following, all of the metatarso-phalangeal joints of the left foot became involved. After three days the corresponding joints of the right foot were also attacked. I saw the patient for the first time September 16th. At this time he was suffering excruciating pain, being wholly unable to sleep, even from the effects of large doses of opium. He had been treated with the salicylates without effect. His temperature ranged from 101 to 103° F. The greatest pain was in the metatarso-phalangeal joint of the great toe of his left foot, and in the tendon-sheath of the second toe of the right foot. The whole metatarsal region of the right foot was much swollen from implication of the tendon-sheaths. After some

[1] Read at the Fox River Valley Medical Society, June 21, 1896.

days of treatment, no improvement taking place, and fluctuation being pronounced, I cut down upon the tendon of the second toe and joint of great toe. A very considerable quantity of pus was discharged in each instance. Following this the right foot quickly recovered, but no improvement taking place in the left, the joint was resected, the bones being in an advanced state of caries. The patient made a quick recovery, and, excepting some disability, is at the present time quite well. The case is of interest on account of suppuration having taken place in the tendon-sheath of one foot, and in the joint of the other.

Case II.—Mr. H., aged thirty-one, contracted a gonorrhea in August last. He consulted me in October on account of inflammation in his right ankle-joint, pain over both ossa calci, and in the muscles of his back. The pain in the heels was so severe, and the deep structures so sensitive, that he could only walk on the balls of his feet. The muscles of his back and neck were sensitive and in a state of tension. I then learned of his previous gonorrhea. The urethral discharge had, however, ceased, but there was increased frequency of urination which was slightly painful. Having the patient pass his urine into two glasses, the second glass was seen to contain the characteristic pus-threads and flocculi of a posterior urethritis. The passage of a sound showed the posterior urethra to be inflamed. The patient was given salol internally, and was treated locally by the passage of a sound every second day, followed by a deep urethral injection. I instituted this local treatment with the expectation of curing his post-urethral gonorrhea, and thus indirectly relieving his joint, periosteal, and muscular inflammations. But I was disappointed, for with each passage of the sound and the use of the injection, his condition was made worse. The pain in the heels, in the muscles, and the inflammation in the joint grew worse, until finally he was forced to take to his bed, whereas, when he came to me he was able to be out of the house a little with the aid of two canes. The local treatment was then discontinued, while internally the salol was continued with tonics. He was also directed to drink copiously of water. Under this treatment he has now practically recovered.

Case III.—Mr. J., aged thirty-five, had had numerous attacks of gonorrhea, and was suffering during the winter of 1894–5 from stricture, with a gleety discharge. He had been under the care of various surgeons for the cure of his ailments without receiving any permanent benefit. One day his doctor either forced a large sound through the stricture or created a false passage. The pain caused thereby was excruciating, and, when he was driven home, he fell upon the floor in a faint, his clothes saturated with blood from the urethra.

The next day he developed a violent arthritis of the right knee. I saw the patient in consultation some ten days after the joint had become inflamed. He was then much emaciated, had a high fever, and was suffering intolerable pain in the knee. He had a urethral discharge, and the urine was loaded with pus. The condition of the joint was typical of gonorrheal arthritis, all the structures being acutely inflamed, including the incrusting cartilages, as shown by the starting pains and spasmodic muscular contractions, occurring at night or on the slightest motion. There was also considerable effusion within the synovial sac. This was aspirated, the joint enveloped in a thick layer of absorbent cotton, surrounded by a firm bandage and immobilized in a plaster cast. Extension was applied from below the knee. Internally salol, potash, and balsam, were given. No local treatment was attempted. In ten weeks the patient had so far recovered as to be down-town with the aid of a crutch.

The remedies which are so efficacious in acute rheumatism have little if any effect in urethral arthritis. To remove the cause, to cure the gonorrhea, thereby preventing further systemic infection, would seem to be the most rational method of treatment. The local treatment by sounds and injections is usually contraindicated, unless there be pronounced stricture, as their use causes abrasion and favors absorption. Something may, however, be accomplished with remedies which exert an antiseptic effect upon the urine, as salol, boracic and benzoic acids, and quinin, and with those which increase the quantity and lessen the activity of the urine, as well as with those which exert a favorable specific influence through the urine on the inflamed urethral mucous membrane.

In the primary local treatment of the arthritis, compression by bandage over a layer of absorbent cotton, with rest, secured by immobilization, and extension, if the disease is at the knee or hip and has attacked the incrusting cartilages, are the most important indications to be met. Should the effusion be excessive and serious, aspiration may be practised. If pus-formation has taken place, incision with drainage, or excision will be necessary. As there is great liability to partial or complete ankylosis, absolute immobilization should not be continued after the acute symptoms have subsided. For the purpose of hastening the absorption of the sero-fibrinous exudate and favoring the restoration of the joint functions, after the subsidence of the inflammation, passive motion, massage, and electricity, are useful. The repeated production of small blisters over the joint, or the frequent application of the Paquelin cautery, has given me excellent results.

Non-gonorrheal vesical arthritis, though not as

frequent an affection as gonorrheal urethral arthritis, occurs, nevertheless, sufficiently often to render its diagnosis and treatment important. It is met with most frequently in old men, who, either in consequence of an enlarged prostate, or atony of the muscular fibers of the bladder, have that train of symptoms which are the result of an incompetent bladder, residual urine, infection, decomposition, cystitis. The pyogenic microorganisms or their ptomains in the bladder gain an entrance to the venous or lymphatic circulation, find a lodgment in a joint or joints, and there set up inflammatory action. Clinical experience seems to teach that a chronic rheumatic arthritis acts as a predisposing cause to vesical arthritis by creating a *locus minoris resistentiæ*. The following is the history of a case now under my care:

An old gentleman past seventy, with enlarged prostate and incompetent bladder, had been suffering, more or less for several years, with a gradually increasing cystitis. When I first saw him, more than two years ago, he had been confined to his bed for four weeks. This confinement was not wholly nor largely on account of his cystitis, which was nevertheless severe, but on account of inflammation of the joints of his legs, knees, ankles, and feet. Not more than one or two joints were usually acutely inflamed at any one time. When the patient came under my care his limbs were encased in flannels, and it was with the greatest difficulty that he could be moved in bed. Believing that I had before me an infective arthritis, the result of the suppurative inflammation in the bladder, I directed all my attention and all my treatment to the latter organ, and as the condition of the bladder improved, the inflammation of the joints subsided. At the end of the second week of treatment, the pain, swelling, and soreness, had almost entirely left his joints and he could move them quite freely. At this time there occurred a slight exacerbation of the cystitis, and immediately the left ankle became swollen, red, and painful, which subsided again as the bladder improved, and during the fifth week of treatment he was out of bed and walking fairly well, when there occurred a second exacerbation of the cystitis, caused by a too strong injection of nitrate of silver. Almost immediately the right knee became acutely inflamed, the inflammation subsiding with improvement of the cystitis. During the two years and more that this patient has been under my care, he has been confined to his bed five times for short periods on account of acute inflammation of some of his joints, the joint inflammation being always coincident with an increase of his cystitis from neglect of local treatment, and the instituting of local treatment has in each instance been followed by a rapid disappearance of the joint inflammation. I have seen many cases similar to this during the past two or three years, though this one is perhaps the most typical.

In the treatment of this class of cases it is of great importance to restore, as far as possible, the functional power of the bladder by the administration of strychnin and tonics, to lessen the decomposition of the urine by the use of salol and quinin, and to relieve the cystitis by washing out the bladder. Probably no medicinal substance is so often used for the latter purpose, and, in my experience, is of so little value as boracic acid. Combined with carbolic acid it is of unquestionable value. Borax is also a favorite remedy with some. In cases where the urine swarms with bacteria, very great benefit is derived from washing the bladder with the bichlorid of mercury solution 1–12,000, or 1–15,000, or permanganate of potassium grs. 5 to 15 to the quart of water, although the former is often followed by severe pain. An occasional instillation into the bladder of from one-half to one dram silver-nitrate solution, of the strength of from one to three per cent., is of value. In my own practice no one remedy has perhaps given me greater satisfaction than the non-alcoholic fl. ext. of goldenseal, one dram to the quart of water. It is my practice to wash the bladder with this solution for two or three days, always leaving a syringeful in the bladder after the washing; then for an equal number of days to wash with the carbolic and boracic acid solution, and about once a week to instil a dram of the solution of nitrate of silver into the bladder after thoroughly washing it out with boiled water, and occasionally, if the microscope shows the microörganisms to be in large numbers, washing the bladder with the bichlorid of mercury or permanganate of potassium solutions. I believe a large number of patients, if patiently and perseveringly treated in this manner, may be saved, at least for a considerable time, the serious operation of castration or drainage.

Note.—Since the writing of this article, two additional cases have come under my care, one of gonorrheal arthritis, where the left hip and right knee were inflamed, the other a case of vesical arthritis, occurred in an old gentleman, aged seventy-six, with enlarged prostate, cystitis, and residual urine loaded with pus. In this case three distinct attacks of arthritis have occurred during the past three months, each being coincident with an exacerbation of the cystitis. Evidence of the direct causal relation is constantly accumulating.

CRANIOTOMY ON THE DEAD CHILD.[1]

By JOS. B. De LEE, M.D.,
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This subject is one of great importance, and it is one that is seldom, if at all, found in our literature. We read many articles in the journals on "Craniotomy on the Living Child," "Is it Justifiable?" etc., etc. It is the intention of this paper to leave this subject entirely alone.

Of all obstetric operations, the most common is the forceps. Not infrequently, the operator finds that in spite of very strenuous efforts, he can make no effect on the progress of the child. This is usually due to a mistake in the diagnosis of the position of the head, or to the failure to recognize the existence of a contracted pelvis. At any rate, the attempts at delivery are continued, another physician helps pull, and together they succeed in delivering a dead child, or one so crushed that it dies in a few hours. As for the mother—she has severe cervical, vaginal, and vulvar tears, has *post-partum* hemorrhage, sepsis in the puerperium, happily comes through with her life, but carries the effects of such brutality in the shape of severe cellulitic thickenings in the parametria, adherent uterus, probably life-long invalidism. I have known a physician to pull four hours on the forceps, knowing all the time that the fetus was dead.

The second operation that is too often undertaken to get around the necessity of hurting the dead child, is version. In cases of contracted pelvis, where, in spite of strong pains, the head has not passed the inlet, if the child is dead, craniotomy is the proper operation. I exclude here cases of absolute contraction, referring to those where the conjugata vera is from 3 to 3½ inches. To do a version here is foolhardy. (1) The operation of version is one that, except in the most favorable cases, requires considerable skill in technic; (2) it has always the attendant danger of rupture of the uterus, especially in cases where the lower uterine segment has become thinned during the ineffectual attempts of the uterus to force the head past the obstruction.

The operation of craniotomy is simple, requires less skill than a version, has no attendant dangers, other than those which the operator can avoid, sepsis and injury to the soft parts.

Embryotomy and not version should be chosen in neglected transverse or shoulder presentation. In cases of transverse presentation where one is called early, the child being alive, version is the proper operation. Even when the child is dead, if the bag of waters has only recently broken, and the uterus presents none of the symptoms of threatened rupture, a version may be quite easy, and, in comparison with decapitation, may seem the better operation. Again, one might not have the necessary instruments at hand, but where the labor has been neglected, in cases of contracted pelvis, and where an attempted version meets with even moderate resistance, reject the operation and do an embryotomy.

Again, it may happen, that during an extraction by the breech, the head becomes arrested at the inlet. During the long ineffectual attempts at delivery, the child dies. The operation of election here is craniotomy. In the absence of a perforator, use a pair of scissors.

The following cases will serve to show that the conditions I have described do exist:

Case I.—Primipara, aged twenty-two. Labor eighteen hours, face presentation, mento dextra anterior, head not fully engaged, cervix effaced, and os dilated for several hours. Child dead. Forceps, powerful traction, no progress. Council. Counsel advised forceps, doctor in charge, craniotomy. Counsel with feet braced against the bed, two assistants holding the woman by the arms, after the hardest labor, delivered a large dead fetus. Smart hemorrhage, deep perineal tear; during the puerperium the entire vagina sloughed out. Slow recovery; place where vagina should be, filled with connective tissue, leaving an orifice so small that the finger cannot pass. Later plastic operation, in which flaps were made from the skin of the buttocks, the scar tissue dissected out and a vagina two inches long constructed. Result fair.

Case II.—Multipara. Contracted pelvis, breech presentation. Midwife called assistance because the head would not come. One physician pulled on the body till he got tired. A second succeeded in tearing the body off the head, which was retained in the utero. Now there was nothing to catch hold of but the jaw. A third physician succeeded in ripping this out. Still the head would not come! The fourth physician finally, by pushing his fingers into the orbits, was able to deliver the rest of the head.[1] The poor woman died in three hours.

Case III.—Primipara, normal pelvis, large child. Head movable above the inlet. Forceps, long and powerful efforts, but no progress. Child died during these tractions. An attempt at version succeeded only in bringing down a foot alongside the head. Operator, now exhausted, gave place to another who, with great force,

[1] Read before the Illinois State Medical Society, May, 1896.

[1] Cocq says forceps, in generally contracted pelvis, is equivalent to embryotomy.

completed the version. In the extraction which followed, the perineum was torn through the anus, a tear extending four inches up the recto-vaginal septum. Primary suture sloughed, now permanent incontinence of feces. Craniotomy was not done because it was thought too dangerous. And these operations were not dangerous!

Case IV.—Reported in the New York Obstetrical Society last year. Occipito-posterior position, head still movable. Placenta prævia marginalis. Prolapse of the arm and the cord. Truly a complicated case, but the *child was dead.* The following operations were done to deliver the lifeless foreign body: (1) Forceps used to try to correct the bad position of the head. (2) Forceps as an instrument of extraction using all possible power, and kept up for a long time. (3) Incisions in the cervix. (4) Forceps again after this. Failure. (5) Version, during which the back turned to the mother's back, making the bringing down of the arms very hard. (6) Forceps on the aftercoming head! The woman died in forty hours.

It is encouraging to note that the paper was very sharply criticized, and the proper treatment advanced, at the time it was read. If the child had lived at the time of the first examination, the proper operation was version. This was indicated by all the conditions, placenta prævia, posterior occiput, prolapse of the hand and cord. But the child being dead, the cervix only large enough to admit the forceps, and in the presence of an indication for the termination of labor, there was only one operation to do—craniotomy. Can there be any doubt that, if this operation had been performed, the woman would have lived? It is easier and less harmful that any single one of the methods employed to deliver this case.

The late Dr. W. W. Jaggard said, "the necessary mortality of craniotomy is zero." Winckel says, "the percentage of maternal deaths in the hands of skilful operators is reckoned at 0 after perforation, and as at least 8.4 per cent. after the Cæsarean section. The former is entirely free from danger, and the latter can be designated as quite dangerous, etc."

In cases where labor has become so complicated that the operation is imperatively demanded, especially where violent attempts at delivery have been made, a certain number of deaths must occur, but these cannot be laid at the door of craniotomy. For this reason all statistics regarding the operation are valueless, unless the foregoing operations have been considered, *i.e.*, whether the craniotomy has been undertaken as a primary operation, or only as a last resource. In seventy-one cases by Leopold of Dresden, two deaths occurred, and both from eclampsia, for which the operation was undertaken. This leaves the mortality of the operation itself at zero. Fehling in twenty-three cases, lost one woman from eclampsia. These statistics are taken from the present antiseptic and aseptic era, and from good operators, being the only reliable figures that could be found. Busey of Washington, in an eloquent plea for the abolishment of craniotomy on the living child, gives many different statistics. According to the totals, the mortality varies from seven to twelve per cent. This includes cases where Cæsarean section should have been done for the absolute indication, and all cases where ineffectual attempts at delivery had preceded the craniotomy—the last hope.

Why should there be any mortality from craniotomy if it is properly carried out? The operation can always be done slowly, there is plenty of time to prepare everything according to the most stringent rules of asepsis. The perforation of the head under the guidance of the fingers is done with absolutely no injury to the mother, and the subsequent application of the cranioclast is simpler and easier even than the forceps. Care is required in the extraction of the child to protect the soft parts from splinters of bone. If the cervix is not dilated, gentle traction, repeated often, dilates it evenly and safely. Absolute cleanliness protects the patient from infection.

In the last year alone, I have had occasion to do two craniotomies, both for contracted pelvis, and both in the hovels of poor people. Recovery in both cases was prompt. A perforator and a cranioclast are the instruments needed. The latter is simply a large and powerful bone-forceps. While the instruments are boiling, the field of operation is sterilized.

The cervix needs to be large enough to admit three fingers, but the larger it is the better, and in the absence of contraindication, one may wait for sufficient dilatation. The four fingers of one hand are then passed into the vagina and come to rest on the head. The perforator is passed under the cover of these fingers, and does not touch the maternal tissues at all. The head being steadied from the outside, with a gentle boring motion, the point goes easily through the head. The handles are next unlocked, and the blades opened to their full extent. The instrument is locked, turned one quarter of a circle, and reopened. The handles are again locked, and the perforator is carefully withdrawn.

Brain matter flows out, and if the pains be strong, they may force the head into the pelvis.

It is not advisable to leave the case to nature, rather extract. With the same precautions as in forceps, the blades of the cranioclast are passed, the solid one inside the opening which was made, the other one over the face. They are locked and screwed together. The head is extracted as if it were in the grasp of the forceps, using the same rules to pull with a pain and to pull in the axis of the pelvis. After the labor, a thorough vaginal douche or an intrauterine antiseptic douche is given.

In conclusion, I wish to give the following indications for craniotomy: (1) All cases where, the child being dead, an indication for the termination of labor arises. This operation should be done instead of the forceps, when the maternal soft parts are unprepared for rapid delivery. Such cases are eclampsia, placenta prævia, premature detachment of the normally implanted placenta, prolapse of the cord with danger to the mother from any cause—in short, don't apply the forceps on a dead child. The only exception I would make to this rule is the case of a multipara, with the head low down and the soft parts well prepared. (2) Cases of contracted pelvis when the conjugata vera is not smaller than 2½ inches. To do a hard version or extraction, or a forceps, or a Cæsarean section, is not justifiable when the child is dead. (3) In neglected transverse presentation, embryotomy should be done. The thought of a version should not be entertained for a moment.

CLINICAL MEMORANDA.

A CASE OF IMPERFORATE ANUS.

By C. D. SPIVAK, M.D.,
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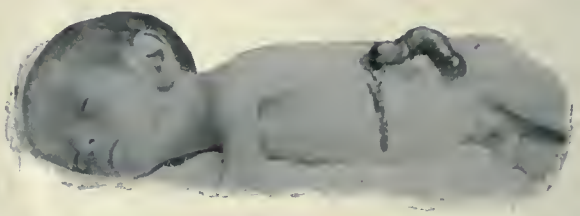
THE rare occurrence of congenital malformations of the rectum (1 in 22,218)[1] justifies me in reporting a case which has come under my treatment.

The baby, a boy, on the second day after birth, was noticed to be sick. He passed urine, but the bowels had not acted since birth; there was no discharge of meconium. He vomited the milk curdled, and once also vomited fecal matter. The abdomen was distended, painful on pressure; there was violent straining. The perineum was smooth, the raphe extending from scrotum to coccyx. Not even a dimple marked the anal site. The superficial veins presented the shape of caput medusæ—prominent and tortuous. On deep pressure over abdomen or the descending colon no bulging was noticed at the would-be anal orifice, and no tumor or fluctuation could be detected. The genital organs were to all appearances perfectly developed, the penis being somewhat longer than normal, as can be seen on the accompanying figure. The case was diagnosticated as complete absence of the anus, the rectum being abnormal and ending at a greater or less distance from the normal outlet.

An attempt to reach the rectal pouch through the perineum was decided as a means of relief, and the consent of the parents readily obtained. The child was placed in the lithotomy position; no anesthetic was used. The incision was made in the median line over the raphe from the root of the scrotum clear to the tip of the coccyx. The tissues were divided by a small scalpel, slowly and carefully, using the finger for exploration. The space between the rami of the ischia was so small that the operation, simple as it may seem to have been, was indeed very tedious. I kept pretty close to the anterior surface of the coccyx, and carried my incision about two inches and a half deep near the coccyx and about one inch at the scrotum. The operation was almost bloodless; no vessel had to be tied. The child was perfectly quiet and unconcerned, it having made an outcry only when the first incision was made. No bulging was detected by the exploring needle, and the operation was abandoned.



PROTRUSION OF INTESTINE AFTER COLOTOMY.

On the following day, the third after birth, Professor E. E. Montgomery saw the case in consultation with me. The operation of colotomy was decided upon. Owing to the fact that the descending colon was visible and palpable through the thin abdominal walls, Amussot operation was chosen. A longitudinal incision was made over the gut on a line about one inch below the umbilicus. The edges of the wound were everted and the peritoneum secured by several stitches to the edges of the skin. The gut, which presented itself as soon as the opening was made, was secured to the edge of the wound by several sutures of fine silk, and then slit open. A large quantity of meconium was discharged with a hissing sound of escaping gases. The wound was cleaned by a weak solution of bichlorid of mercury and a pad of borated cotton was applied and lightly bandaged. The abdomen became of normal size; the child fell asleep quickly. It took the breast greedily; vomiting never returned.

The feces, well formed, were discharged through the artificial anus two or three times daily, the parts being kept clean by a boracic-acid wash. The wound healed kindly.

On the fifth day after the operation the proximal and distal ends of the gut began to protrude, and formed a sausage-like body constricted in the middle, which can be seen on the accompanying figure. The feces were dis-

[1] Kidd, Dublin *Journal Medical Science*, 1896, 3s. c., p. 121.

charged from the proximal end. Frequent replacing of the gut and gentle plugging with gauze and bandaging were of no avail. On the tenth day after the operation the everted and protruding ends of the gut attained their maximum length, about six inches, the proximal end being the shorter of the two. On the thirteenth day after the operation diarrhea set in, and the case terminated fatally on the nineteenth day after birth.

The autopsy revealed, to our astonishment the existence of a well-formed anus occluded by integument only and terminating at the scrotum, about a fourth of an inch from the incision, running almost alongside of the urethra, but not communicating with it. The internal organs were normal and in situ, but the vermiform appendix was abnormally long.

The points of interest to be deduced from the case are as follows:

(1) That pressure over the abdomen does not in all cases produce bulging in the perineal region, and therefore its absence does not preclude the existence of the rectum in that region; (2) that a sound should be introduced into the bladder, and kept there while operating, in order to facilitate exploration; (3) that the incision should be made from the coccyx clear to the urethra; (4) that Littré's operation should be preferred, which is made nearer to the natural outlet, and thus the protrusion of the distal gut, at least, could be avoided; and (5) that colotomy is absolutely justifiable.

A CASE OF EXOPHTHALMIC GOITER TREATED BY THYROIDIN.

By R. M. WHITEFOOT, M.D.,
of Bozeman, Mont.

Miss B., aged eighteen, good physique, well developed, good family history, was brought early in August, 1895, to me for treatment. She presented all the well-marked symptoms of goiter, enlargement of the thyroid gland, protrusion of the eye, increased action of the heart, and general atrophy, with profuse menstruation and disturbance of the nervous system. I concluded to try the juice of the thyroid gland, or rather the active principle, in half-grain doses, three times a day, commencing August 14th. The patient seemed to feel the effects of the treatment very quickly; in two weeks there was a marked decrease in the size of the tumor, the eye was less prominent, and the heart action improved, though she became emaciated, low-spirited, and mentally very erratic. From being unusually light-hearted, cheerful, and amiable, she became morose and fretful. Her mother and sisters became alarmed, fearing her mind might become permanently affected; however, the improvement in the diseased gland was so great, and continued improvement so evident, that I persuaded her mother and herself to continue, and at the end of a month the tumor was reduced at least one-half in size, and the eyes were almost natural. The heart did not respond so readily, but I attributed that to some extent to the nervous tension and mental emotion. As she lost her appetite and suffered from nausea, owing, I think, to imagination and dread of being obliged, at regular intervals, of having to take a dose of medicine, I was obliged to suspend the treatment three times, and to reduce the doses to twice a day several times for a day or two, but on the whole the patient was under the effects of the medicine for about sixty days, or till the early part of October, when all signs of the disease had disappeared. Her heart's action became normal, the eyes had assumed a natural appearance, and though her mental condition was not satisfactory, I trusted to time and surroundings to correct that. I am happy to say that my hope has been realized. She gradually returned to a normal condition, and is, at this date, perfectly well, cheerful, bright, plump, and her menstrual functions are regular. Her family history would indicate neurotic origin, her parents both being extremely nervous. Her mother, though of good physique, is hysterical and very excitable, and the father, while of more than ordinary intelligence and with a good physique, is of a morbid, melancholy temperament, and very depressed at times. There are five sisters, no brothers. They are all stout, healthy girls, but of extremely nervous type.

MEDICAL PROGRESS.

Alcoholism in Europe and its Relation to Insanity.—In a paper recently published (*Thèse de la Faculté de Paris*, No. 219) Darin states that alcoholism is increasing in Italy and Belgium, and especially in France, while it is decreasing in Norway, Switzerland, and Germany. Corresponding to this increase, the number of lunatics in France has also increased. The gain has been chiefly in the two types of insanity known as alcoholic mania and general paralysis. This relation between alcoholism and insanity is also shown by the statistics of different portions of the country, for in those districts where alcoholism is most marked insanity is most common.

The hereditary effects of alcohol are not less striking, for, according to Legrain, among 814 children of alcoholic parents were 322 degenerates and 174 who had not sufficient vitality to live. Among the survivors are fourteen per cent. of hysterics and seventeen per cent. of epileptics.

General paresis has increased in Paris in proportion to a greater frequence of alcoholism.

Surgical Treatment of Tuberculous Testicle.—Tillaux gives (*Bull. Méd.*, 1896, p. 533) his conclusions from a wide surgical experience as follows: (1) In suppurative cases with fistulæ, in which epididymis and testicle are almost destroyed, try to prevent the spread of the disease without operation by deep cauterization, drainage, iodoform gauze, etc. Castration may be inevitable. (2) In non-suppurative cases in the adult the treatment should be constitutional and expectant. Recovery often follows. (3) In non-suppurative cases occurring before the twenty-fifth year the affected part is to be removed, but the resection should be confined to the diseased tissue, *e.g.*, the epididymis alone.

Syphilis Contracted from a Razor.—Catrin in *La Presse Méd.*, June 20, 1896, reports the case of a young

man, aged twenty-seven, who contracted syphilis in September, 1894. The initial lesion was followed by a secondary variola and mucous patches. Despite treatment, the improvement was slow.

In July, 1895, the father of this young man, while using his son's razor, cut himself in the chin. This slight wound became an ulcer with indurated border, accompanied by a painful submaxillary adenitis. Well-marked secondary symptoms developed. He was given large doses of the protoiodid, which developed an obstinate stomatitis. In March, 1896, there was a double iritis, which yielded to mixed treatment.

The author insists that this case teaches physicians not to regard too lightly the possibility of contagion in the second stage of syphilis.

Malignant Growth in the Lung, Diagnosed by the Sputum.—In *Virchow's Archiv*, vol. 142, p. 86, is a description of a case of primary carcinoma of the lung, in which the diagnosis was made several weeks before death by means of a microscopical examination of the sputum. The patient, a woman, aged fifty-four, who had suffered for many years with chronic bronchitis, began to expectorate blood in small quantities. As there was a tubercular family history, her attending physician made the diagnosis of phthisis. There was evidence of consolidation in the right lung from the fourth dorsal vertebra downward. There was no fever. The fresh sputum contained blood, fat drops, and granular cells; but its striking characteristic was the presence of large numbers of large, round cells, arranged in bands with one or more nuclei and from one to four nucleoli. On this ground the diagnosis of pulmonary carcinoma was made—a diagnosis which was proven to be correct by the autopsy, two months later. The cells in the sputum, according to the writer, Betschardt, occur in smaller masses in carcinoma than they do in sarcoma of the lung, because of the denser stroma in the former variety of malignant growth.

Mechanical Treatment of Chronic Constipation.—Schreiber (*Wiener med. Presse*, 1895, Nos. 21–22), divides the forms of chronic constipation into four: (1) That which characterizes young individuals who are otherwise strong and hearty; in these cases a hereditary diathesis or a sedentary life may be the etiological factor. (2) The constipation which attends the various disorders of the digestive apparatus. (3) The constipation of the neurasthenic and anemic persons and such as have deteriorated in bodily tone. (4) The constipation of the obese. In all these types the most reliable treatment is the mechanical one, which consists in massage and suitable gymnastics. In the second form the regulation of the diet should assist the mechanical treatment. In the third form, a change of surroundings, recreation, and hydrotherapy may give good results in connection with the mechanical method. In chronic constipation purgatives and clysters do more harm than good.

An Aseptic Operation for Gangrenous Strangulated Hernia.—In the *Centralblatt für Chirurgie*, No. 33, 1896, Bogdanik describes a method of treatment of strangulated hernia by which he believes the danger of infection is reduced to a minimum. Peritonitis arising after operation for a gangrenous strangulated hernia is due, according to the author to infection at the time of operation. To avoid this he hit upon the plan of removing with scissors and knife all the gangrenous tissue of the sac and its vicinity and disinfecting the wound with carbolic acid solution. The gangrenous intestine is then washed with carbolic solution and dried with sterile gauze, clamped and wrapped in gauze. The ring is divided sufficiently to permit the drawing forward of several inches of normal gut and resection and circular enterostomy are performed. Another washing and sponging takes place, and the loop of intestine is replaced in the abdominal cavity.

The Best Way to Open the Bladder Suprapubically.—Dandolo (*Centralblatt f. Chirurgie*, No. 33, 1896) performs suprapubic cystotomy as follows: After the properly distended bladder is exposed it is seized and divided longitudinally through the muscular layers only. Then two silk stitches are passed through each edge of the muscular wall, and the mucous membrane is divided between them. By this method any blood-vessel which needs tying is easily exposed, the division of the mucous membrane is performed under the eye and not blindly, and the mucous membrane is not necessarily included in the suture.

THERAPEUTIC NOTES.

The Local Treatment of Ocular Diphtheria.—Hertel describes the plan pursued in the treatment of ocular diphtheria at the Ophthalmic Clinic of the University of Jena. General and local measures are employed, in addition to injections of the antitoxin. The lids are frequently everted, and the false membrane gently touched with swabs of cotton wet with a 1–500 solution of mercuric chlorid. Into the conjunctival cul-de-sac is introduced a small quantity of an ointment containing a sixth of a grain of mercuric chlorid to the ounce of vaselin. Over the closed eyelids are placed compresses saturated with a solution of mercuric chlorid 1–1000, or of boric acid fifteen grains to the ounce. The use of cold compresses and astringent antiseptics is contraindicated. Corneal ulcerations are touched with a solution of mercuric chlorid 1–1000. Secondary eczemas are treated with solutions of silver nitrate, fifteen grains to the ounce.—*Semaine Médicale*, 1896, No. 30.

The Treatment of Gonorrhea With Formaldehyde.—Orloff (*Wratsch*, 714, 1895; *Centralbl. f. d. Krankh. d. Harn- u. Sexual-Organe*, B. vii, H. 5, S. 287) details the results secured in the treatment of ten cases with formaldehyde. Following injections of a five per cent., or a weaker solution, the purulent secretion soon became serous and gonococci disappeared. Unpleasant effects were not observed. As formaldehyde is volatile, it is well always to prepare a fresh solution. Stronger solutions than five per cent. are not to be recommended.

The Medical News.

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OF MEDICAL SCIENCE.

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SATURDAY, OCTOBER 3, 1896.

BROOKLYN'S DANGER AND THE INADEQUACY OF HER CHARITY HOSPITAL.

The condition of Brooklyn's water supply has occasioned no little concern among her inhabitants during the last few weeks. It required an unreasonable length of time to arouse the proper authorities to a realizing sense of the situation. The wonder is that the people were willing to use such a discolored, foul-smelling water, without prompter protest. The only explanation can be found in the fact that Brooklyn has long prided herself upon the excellence of her water supply. Backed by the sweeping assertions of her chemists, announced years ago, that Long Island afforded an unfailing supply of the purest and best water in the world, she has been innocently resting upon this assurance, and denouncing as an ignoramus anyone who dared intimate that Brooklyn water was not the purest. In the meantime, Long Island has been rapidly peopled by a surprisingly large population, which has naturally congregated in the greatest numbers along her water courses, and now that Brooklyn water is foul and malodorous, the citizens are awakening to the condition that confronts them. With the many sources of contamination that surround the sources of her water supply, from the drainage attendant upon this increasing population, it is a matter for thankfulness that germs, productive of fatal epidemic, have not already found their way in the water channels.

As recorded in the News of last week, the careful analysis of many specimens of the water taken from the various sources of supply, fails to discover any cause of disease therein, the expert who examined them announcing that there is no danger in the use of the water "at present." But he did find a condition to exist, which undoubtedly affords a most fertile nidus for the develment of typhoid and other noxious germs.

Until this can be eradicated, the dangers and the horrors of a typhoid-fever epidemic constantly threaten with the imminence of the sword of Damocles. How promptly and how thoroughly the cleansing of the waters shall be accomplished is a question of the future. For the present, the urgent question that suggests itself is, how well is the charity hospital of Brooklyn equipped to meet an epidemic should it arise?

A personal investigation, on the part of the News, discloses the fact, that not only is the city utterly unable to cope with an epidemic, but that her present accommodations for the sick poor already existing within her limits and demanding care, are shamefully inadequate. We have read, in the years happily long since past, of the overcrowded condition of the French hospitals, wherein the revolting spectacle was presented of four patients, afflicted with different diseases, crowded crosswise into two single beds placed side by side, whole wards being filled in this way. To our utter amazement, we find Flatbush Hospital in Brooklyn, in quite a similar condition.

Flatbush Hospital, the only public hospital in the city, was erected forty or fifty years ago, with accommodations for four hundred patients. But the building that filled the requirements of fifty or even twenty years ago, has been rendered utterly inadequate by the great increase in the city's population. The result is that a building intended to accommodate four hundred, is compelled to give shelter to seven hundred. That is the number actually crowded into the existing

space. No doubt the good people of Brooklyn will be horrified to learn that if they should enter the portals of the Hospital, they would find from three hundred to three hundred and fifty of their sick poor bestowed on mattresses laid on the floor. To add to the discomfort occasioned by this disgraceful condition, there is not a trained nurse in the institution, and the efficiency of such nurses as there are can be imagined, when we learn that they are obliged to sleep in the wards with the patients. Necessarily, the sanitary and hygienic arrangements are insufficient to meet this extraordinary demand. The medical staff, under efficient leadership, are struggling manfully against overwhelming odds, to render the best service possible under the circumstances.

That such a wretched condition should exist, at this stage of enlightenment in regard to hospital accommodations and management, is a blot upon the reputation of any community.

RECENT PROGRESS IN NEUROLOGY.

CEREBRAL HISTOLOGY AND ANATOMICO-PHYSIOLOGY.

Neurological literature for the past few years has reflected very little which possessed either novelty or special interest in the domain of gross anatomy or histology, but in the more delicate and still somewhat obscure field of minute histology and anatomico-physiological research much work has been done, with a resultant degree of enlightenment which is prophetic of a rich harvest in the near future. The factor chiefly responsible for our advancement in this direction has been the various improvements devised in methods of research, the most notable of which are associated with the names of Golgi, Luciani, Marchi, and Ramon y Cajal. Other workers in this field, whose contributions have added notably to the value and scope of our knowledge of the subject are Andriezen, Risien Russell, Mellus, Van Gehucten, Turner, Schaeffer, Bevan Lewis, Biedl, and Chaslin.

The line of investigation which has been most positively fruitful in results has been that of experimentally induced pathology. Beginning with the functionally highest structures, the cells of the cortex, Andriezen has shown that the apical processes of the great pyramidal cells of this region receive the terminal processes of the fillet radiations, a fact which leads to the conclusion that these are the sensory cells of the cortex. If accepted, this conclusion points to the correlated acceptance of a practically identical cortical localization of motor and sensory function or representation. Further support of this teaching is to be found in the results obtained through experimental studies by Flood and Schaeffer (*British Med. Journal*, July 28, 1894). With very few exceptions, this view is generally accepted among neurologists to-day. In connection with this subject of cerebral representation of common sensation, Spitzka (*Lancet*, January 19, 1895) publishes advance notes of a case of direct interest and importance, involving a focal lesion of the right stratum intermedium, the patient presenting during life more or less complete right hemianesthesia, with loss of mechanical coördination, but preservation of equilibrium. Further study, not yet complete in this case, is expected to demonstrate facts of importance in connection with the pathway of sensory fibers in the cerebrum. Turner's (*Brain*, 70, 71, 1895) experiments, several in number, also bear upon this subject of the pathway of fibers conducting sensory impressions. He destroyed the tubercle of Rolando in the medulla of the monkey, and noted as a result (1) defect or abolition of all forms of sensation in the skin, mucous membrane, and cornea supplied by the fifth nerve, with contraction of the pupil of the same side, but without trophic change in the eye. The loss of sensibility was in relation to destruction of the ascending trigeminal root forming the superficial white stratum of the tubercle. The effect on sensation in the body was (2) loss or defect of the sense of touch and of localization on the side of the lesion, but retained pain-sense, while on the side opposite, the impairment was of pain-sense only.

Mellus (communication to Royal Society, England), working in the laboratory of Horsley, reports the results of a series of experiments made with the object of determining the pathway of certain motor fibers from the cortex downward. The bonnet-monkey was the subject of experiment, the centers for the hallux, thumb, and face

in the left hemisphere being the areas of the cortex subjected to minute experimental lesions. He found that the coarser degenerate associate fibers from the thumb lesion were distributed to the upper part of the motor area, and the finer fibers to the lower—an observation corroborative of the measurements of Bevan Lewis. In the internal capsule these degenerate fibers were divisible into two systems, one the fine fibers passing into the outer surface of the optic thalamus from the posterior limb of the capsule; the other, coarse fibers, passing through the internal capsule into the crus and ending, apparently, in the *substantia nigra*. The fibers representing degeneration secondary to the lesions of the facial center are situated in the middle third of the crus, mingled with the fibers of the pyramid, and not occupying a separate space mesial to the pyramid. These experimental findings are especially noteworthy, since they, in some degree, are opposed to the teachings of Meynert and others.

The pituitary body, long an enigma as regards its function, has been the subject of especial study by Andriezen (*British Med. Journal*, January 13, 1894) and Sacchi and Vassali (*Centralbl. f. Allgem. Path. Anat.*, May, 1894). They find that the function of this body is essentially trophic, enabling the nerve-tissues to take up and assimilate oxygen from the blood-stream. It also exerts an influence upon metabolism, destroying or rendering innocuous certain waste products. The pathological findings in acromegaly involving disease, usually of hypertrophic type, of this gland are strongly confirmatory of the experimental findings of Andriezen.

The cerebellum has perhaps been the subject of more extended and enthusiastic study than any other special portion of the cerebro-spinal system during the past half decade. Marchi, Luciani, Risien Russell (*British Med. Journal*, July 28, 1894), Turner (*British Med. Journal*, August 21, 1894), Biedl, and Ferrier are among the large number who have made notable contributions to our present knowledge of the subject. Ferrier (*Annual of Univ. Med. Sciences*, 1895, vol. 2; Section, Brain), in his presidential address before the London Neurological Society, reviews critically the published researches in this field of Luciani and Marchi. He accepts as proven by them the facts: (1) That the cerebellum has no share in psychical manifestations; (2) its removal causes no evident impairment of any of the special senses, nor cutaneous nor muscular sensibility; (3) it has nothing to do with sexual impulse or desire; (4) the influence of the cerebellum is direct and not crossed; (5) the middle lobe is not, as taught by Nothnagel, the essential lobe. Some of these statements, as will be noted, are radical innovations in teaching and belief.

William Broaddus Pritchard, M.D.

ECHOES AND NEWS.

Diphtheria in Iowa.—The county fair has been abandoned, and the public schools have been closed on account of an epidemic of diphtheria in Salem, Iowa.

Cycling for the Insane.—Bicycle riding has been introduced into the Michigan Insane Asylum at Kalamazoo, for its beneficial effects on the patients.

Whooping-cough in an Orphan Asylum.—Whooping-cough is epidemic in the Colored Orphan Asylum, New York, which has upward of two hundred inmates. The institution has been quarantined.

Disease in Cuba.—There has been a notable increase of yellow fever among the Spanish troops in Cuba. There are upward of 2500 patients in the Military Hospital at Havana.

The Cholera in Egypt.—The weekly mortality from cholera throughout Egypt has fallen from two thousand to six hundred. It is expected that in November or December the epidemic will be entirely eradicated.

Irrigation of the Pericardial Sac.—Professor Verdelli of Parma, recently opened the thoracic cavity, exposing the pericardium, which was given an antiseptic washing. The patient, who had been given up as lost, recovered.

Opening of the Samaritan Hospital Annex.—The annex to the Samaritan Hospital in Philadelphia was opened on September 26th. The new building cost $10,000, and will accommodate twenty-six patients.

Antitoxin for Lockjaw in Brooklyn.—Dr. Ezra Wilson, the bacteriologist of the Brooklyn Health Department, has been preparing tetanus antitoxin. It has been used with apparent success in a case this week.

A Layman as a Public Vaccinator.—The government of South Australia, whose attacks on the medical profession led to the resignation of the staff of the Adelaide Hospital, has appointed a layman as a public vaccinator for the colony.

The Bubonic Plague.—A virulent bubonic plague is prevalent in many parts of the Bombay Presidency, from

which upward of a hundred deaths have already resulted. There are only sporadic cases of the plague now in Hongkong.

Eberth's Bacillus.—Drs. Remlinger and Schneider of the Val-de-Grace Bacteriological Laboratory, have found Eberth's bacillus to be much more common than was generally supposed. It was present in eight out of thirty-six samples of water, and in six out of ten samples of earth.

Displacement of the Heart.—A seventeen-year-old girl died recently at the New York Hospital. The autopsy showed that in childhood the central lobe of her right lung had collapsed and the fatty growth that resulted caused an adhesion of the heart to the wasted tissues on the right side.

The New York State Veterinary College.—The State Veterinary College at Cornell University, was opened September 23d. The State Legislature of 1894 appropriated altogether $250,000 for the erection of the college buildings, and since then $30,000 has been appropriated for its annual maintenance.

Good Work Among Mohammedan Women.—A recent issue of the *Med. Wochenschrift* describes the reforms introduced into Bosnia and Herzegovina by two women physicians, Drs. Krayeska and Keck. By reason of their sex they have won the confidence of the Mohammedan women and, by their antiseptic obstetrical work, have reduced the mortality of these provinces to a gratifying extent.

Typhoid in Chicago.—Secretary Reilly of the Chicago Health Commission predicts an epidemic of typhoid fever unless citizens are more careful in the use of the water. Thus far in September there have been 64 deaths from typhoid, and there are said to be over 600 cases of the disease in the city. The typhoid fever death-rate shows that there were at least 600 cases in August.

Money to Purify Brooklyn's Water.—The Brooklyn Board of Aldermen at its session, September 21st, adopted the report of the Committee on Water and Drainage, which gives the Commissioner of City Works $311,000 for the maintenance of the water system, $150,000 for diverting the dirty water from Hempstead Reservoir, and $75,000 for the purchase of land to protect the water supply. The purification of Gowanus Canal was also considered.

Sleep Experiments.—Professor Patrick and Dr. J. S. Gilbert of the University of Iowa, in the *Psychological Review*, record experiments made to determine the effects of prolonged loss of sleep. Dr. Gilbert and two of the University teachers were kept awake for four days and three nights. One suffered most on the second night, another on the third, the other experimenter was not affected. All gained in weight. The power to lift, steadily decreased, and memory and power of attention were also lessened. All powers were completely restored after a sleep of eight or ten hours.

A Baltimore Bequest.—The bulk of the estate of the late Enoch Pratt, the Baltimore banker and philanthropist, is left to the trustees of the Sheppard Asylum of that city, with the stipulation that the name of the institution be changed to the Sheppard and Enoch Pratt Hospital. The income of the fund is to be used to complete the present buildings and grounds, and erect an additional building, with a capacity for two hundred persons. When this is done the remaining fund is to be used for the care of indigent insane free of cost. The bequest is made on the contingency that the trustees obtain an act to amend the charter of the institution.

New Edition of "Gray's Anatomy."—A copy of the revised edition of "Gray's Anatomy," recently announced by Lea Brothers & Co., has just been received. Much expectation was aroused by the announcement, and the appearance of the volume meets it most fully. The pages look familiar, as we turn them over, but many of the subjects have been entirely rewritten and some new matter added. The addition of 135 new and handsome engravings enriches the volume beyond what seemed possible. By the addition of this artistic work "Gray's Anatomy" easily holds its place as "the foremost of all medical text-books." A fuller review will appear in the columns of the NEWS very shortly.

Bacteria and Aerated Water.—Professor Frankland, in *Nature*, shows the fallaciousness of the prevalent idea that by drinking aerated water safety from infectious diseases is insured. In experiments by Slater, the number of bacteria varied from 299 per cubic centimeter with 15 grams of carbon dioxid per liter, to 2000 with 6 grams per liter. The spores of the anthrax bacillus have been found to survive 154 days in aerated water, but the cholera bacilli cannot live longer than three hours. The typhoid bacillus requires a period of two weeks to insure its destruction. The author recommends storage for a certain period, as time is thereby given for the destruction of the pathogenic bacilli by the innocuous forms.

The Water Supply of the League Island Navy Yard.—The report of Surgeon Siegfried of the U. S. battleship "Massachusetts," alluded to in our issue of the 19th, is vigorously disputed by the Board of Health of Philadelphia. They deny that the League Island Navy Yard possesses any connection with the city mains, and assert that the drinking-water used there is obtained from a local system, the sources of which are driven wells. It is further stated that the surgeons at League Island have frequently reported that the conditions at that yard are detrimental to the health of officers and men stationed there, and that it is the duty of the U. S. Bureau of Medicine and Surgery to take such measures as will prevent disease at the naval stations.

International Registration of Scientific Discoveries.—Professor Michael Foster of Cambridge University, has proposed an international organization of science to register at frequent intervals the results of contemporary investigation, and so by placing the worker and his output on record to minimize the risk of retracing ground already trodden, and to make clear to the world of science what has already become common property and what still re-

mains the possession of the original author. If this plan can be adopted there will, of course, be fewer cases of disputed priority in regard to private as well as laboratory experimentations and discoveries. Suits for plagiarism, like that of the French dentist against Professor Lombroso—not frequent at the present time, it is true—will become exceedingly rare.

Obituary.—John Eric Erichsen, F.R.S., LL.D., Hon. M.Ch. and Hon.F.R.C.S., died at Folkestone, England, September 23d. He was born July 19, 1818, and educated at the Mansion House, Hammersmith, and at University College, London, At the time of his death Mr. Erichsen was Emeritus Professor of Surgery and consulting surgeon to University Hospital, and to many other medical charities. He had been President of the Royal College of Surgeons of England, of the Royal Medical and Chirurgical Society, and of the Surgical Section of the Great International Medical Congress of 1881. He was Surgeon-Extraordinary to the Queen, and had been President of University College, London, since 1887. Mr. Erichsen was the author of many works and essays on physiology and surgery.

The "New Journalism" Transplanted.—"The Lounger" writes in *The Critic:* "Display headlines give the London *Daily Mail* quite the air of an American newspaper . . . That the sensational aspect imparted by the glaring headlines does not always belie the text, is clearly shown in its cablegrams from America. Under date of August 14th, for instance, its New York correspondent sent this dispatch: 'Still the heat continues, and the odor of the charnel-house reigns over the city. From hundreds of decomposing human bodies, and from the rotting carcasses of horses there exhales a stench that is positively sickening. Added to this horror is an epidemic of rabies. Mad dogs are running about the streets, and already more than a score of children have been bitten. The mortality due to the heat yesterday totals up eighty-five persons.'"

NEW YORK FOUNDLING HOSPITAL — RESOLUTIONS ON THE DEATH OF SISTER IRENE.

The Medical Board desire to pay tribute to the memory of Sister M. Irene FitzGibbon, late Superior of this institution.

Several members of the Board have served for more than twenty years, and have witnessed the growth of this work, its transference to larger buildings, and its full development.

They recognize the fact that the one person who organized, who procured friends and funds, who planned and built the one great Foundling Hospital of America, was Sister M. Irene.

Whatever other forces and agencies were assisting, it has been obvious to all that the central figure, the persuasive tactful genius, the sweet-souled woman who led to this success, was she to whom to-day the Medical Board pay this parting tribute:

Whereas, the Medical Board, in the death of Sister M. Irene, the Sister Superior of the Hospital, have lost the first executive officer and long-tried friend, therefore be it

Resolved that the Board cause to be spread upon the minutes of its records these resolutions of appreciation and sorrow, incorporating the words:

"This Board has lost the best friend any hospital board ever had."

Resolved further, that the sympathy of the Board be extended to the Reverend Mother Superior and the Sisterhood of the Sisters of Charity, also that a copy of these resolutions be forwarded them, and be published in the current medical periodicals.

New York Foundling Hospital, September 15, 1896, special meeting. Signed

J. Lewis Smith, M.D. J. O'Dwyer, M.D.
George F. Carey, M.D.,
President of the Medical Board.

SOCIETY PROCEEDINGS.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Twenty-second Annual Meeting, held at St. Paul, September 15, 16, 17, and 18, 1896.

The Association convened in the Senate Chamber at the Capitol.

PRESIDENT'S ADDRESS.

Henry O. Walker, M.D., of Detroit, delivered the president's address. He reported three cases, in which four operations were done, representing nearly all the operative procedures now done upon the kidney.

Case I was of sacculated kidney with suppuration and nephrolithiasis, and nephrolithotomy, and subsequent nephrectomy.

Case II was of tubercular kidney and nuclein treatment.

In Case III there was a freely movable tumor in the right hypochondriac region. The kidney was placed in its proper position, and the capsule divided for a distance of three inches on its convexity, using care not to wound the cortical substance. The capsule was then separated from the kidney for one inch entirely around the cut, and secured by interrupted catgut sutures. The cut edges were fastened to the fascia and muscle, so that when the suturing was complete, there was a solidity of fixation of the kidney.

Truman W. Brophy, M.D., of Chicago, read a paper on

A NEW OPERATION FOR CLEFT PALATE.

It has usually not been thought advisable to operate for the closure of cleft palate until the child is from two to five years old. He maintained that when the operation was thus postponed, the changes in the voice had become permanent, and a repair of the cleft at that time would not react favorably in the voice-production. He freshens the edges of the cleft, then by deep suture of the silver wire fixed through a lead plate, conforming to the palate, draws them together.

C. H. Hughes, M.D., of St. Louis, Mo., read a paper on

THE PSYCHO-NEURAL FACTOR IN CLINICAL MEDICINE.

The physician must consider the whole mechanism of the system when treating any one part. The surgeon must consider the susceptibility, predisposition, powers of resistance, recuperative powers, and natural courage of the patient in determining as to the prognosis or operation. Painful ovaries, neuralgic, congested, or inflamed, are not necessarily to be cut out, but to be cured by neurological treatment. Hope is itself a buoyant medicine, and faith in the physician or surgeon is a therapeutic power that should never be shattered by us.

HUGH T. PATRICK, M.D., of Chicago, read a paper on

TRUNK ANESTHESIA IN LOCOMOTOR ATAXIA.

In nearly all cases of tabes dorsalis there is a band of anesthesia about the trunk at the level of the nipple. It is, early in the disease, very narrow or even incomplete, or may be represented by a zone in which the localization of touches is not normally accurate. The sensory blunting on the leg, so frequent in tabes, is generally an analgesia. The trunk anesthesia is essentially tactile, and the pain-sense may be quite normal. The band of anesthesia does not correspond to the cutaneous distribution of the intercostal nerves, but to the nerve-fibers arising from adjoining segments of the spinal cord. In some cases there are two distinct zones of anesthesia, indicating simultaneous involvement of spinal segments at some distance from each other. The borders are inconstant, ordinarily retract on continued testing, and vary in position with the method of examination. The same band of anesthesia may occur in syphilitic pseudo-tabes, as shown by an illustrative case, as far as known, the only one on record. The patient presented nearly all the symptoms of locomotor ataxia, including a wide band of trunk anesthesia, but a diagnosis of syphilitic disease of the cord was made, and, under an active specific treatment, he made an almost perfect recovery.

DR. HUGHES said that it was not surprising that these peculiar areas of anesthesia should be found in locomotor ataxia, considering that the entire symptom complex of the disease is due to disturbance of the sensory mechanism. He has long taught that organic disease may give expression to a latent hysteria, causing a combination of the two diseases. In locomotor ataxia may be not only anesthesia and analgesia but also hyperesthesia and hyperalgesia.

GUSTAVUS BLECH, M.D., of Detroit, read a paper on the

TREATMENT OF SOME INFLAMMATORY DISEASES OF THE GASTRO-INTESTINAL TRACT.

Treatment of catarrh of the stomach and similar inflammatory conditions, as practised to-day by most medical men, meets with failure because the treatment is directed against the symptoms and not against the cause of the disease. His treatment is directed against the inflammation itself. He prescribes hydrozone, well diluted in water, at least a quarter of an hour before each meal. The oxygen, which then develops, kills the germs, and cleanses the membrane of the wall of the stomach without injuring the animal cells. It is an efficient and powerful, yet bland and innocent remedy. He explained the cure of a case of gastric ulcer with the above treatment.

DR. DALEY of Pittsburg, deprecated the very general use of glycozone, hydrozone, and such remedies, unless a very careful and discriminating diagnosis had been made. Most of the cases are due largely to the formation of toxins.

DR. F. F. LAWRENCE suggested that gastritis was sometimes due to gall-stones.

DR. I. A. ABT of Chicago said that diseases of the stomach cannot be grouped together as gastritis. Many of these conditions are due to toxins found in the gastro-intestinal tract.

DR. LARRABEE of Louisville, is convinced that the portal circulation is a most important factor in these cases, and one, too, which is often overlooked. Exercise is of paramount importance, in all cases of chronic gastritis. In arresting putrefactive changes in the stomach, glycozone has proven most excellent in his hands, but he does not neglect to stimulate the liver when indicated.

PAUL PAQUIN, M.D., of St. Louis, read a paper entitled

THE TREATMENT OF EXPERIMENTAL TUBERCULOSIS IN ANIMALS BY THE USE OF BLOOD-SERUM.

In guinea-pigs inoculated with tuberculosis and then treated with serum, ten per cent. were saved. Later results show a very much higher percentage than this, from twenty-five to fifty-five per cent, being favorable. In human beings, 226 cases showed about sixty per cent. favorable, with 40 recoveries and 120 improved. Anti-tubercle serum is positively curative in many cases. If it does not succeed, it is because of existing conditions, such as intolerance of serum-injections of any kind (which is very rare), general destruction of physiologic equilibrium beyond repair, incurable lesions or mixed infection.

DR. LONGSTREET TAYLOR of St. Paul: It is not necessary that the serum should produce an antitoxin in the body. It will, in many cases, give most gratifying results, but in others, for some reason, it is just as disappointing. His experience with the Paquin serum had not been entirely satisfactory, but he intended to give it further tests.

DR. H. W. LOEB of St. Louis had presented some reports relative to the treatment of laryngeal tuberculosis with serum. Of the cases reported, at least two are yet living and well. Of two others, he could not say, but at latest reports there was no return.

DR. JOSEPH MUIR of New York, is convinced a change in the home surroundings of many cases will do more toward a cure than a change of climate.

E. M. HOUGHTON, M.D., of Detroit, read a paper on

A DEMONSTRATION OF THE THERAPEUTIC ACTION OF THE ANTITOXINS.

He reviewed the theories of serumtherapy, demonstrating the differences between toxins and antitoxins. It has not as yet been shown just how the antitoxin counteracts or destroys the toxin. He brought six guinea-pigs for demonstration, three of which he injected with the toxin cultures, the other three with the antitoxin and toxin.

The discussion of the paper was postponed until the result of the injection on the animals should be determined.

Joseph Muir, M.D., of New York, read a paper on

REINFECTION IN CONSUMPTION.

Statistics show that a first attack is not always fatal, and death is often found to be due to other causes. Primary infection is not usually due to inherited tendencies, but external conditions play a most important part. Consumption is best treated among the rich, frequently indeed, a permanent cure is effected in this class of cases; so, for evident reasons, those who are poor should be given especial attention. Patients who have been cured must not be allowed to return to their former environment. Redevelopment is inconsistent with clinical experience. Change of air and outdoor exercise and labor hardens and refreshes the tissues, and the respiratory impurities of former environment are no longer present. Reinfection may be prevented by thorough disinfection of the patient and surroundings, and destruction of the sputum. This protects the patient against himself.

Dr. H. J. O'Brien of St. Paul, is satisfied there are many cases of reinfection. By staying away patients will sometimes escape contagion and reinfection.

Dr. J. A. Larrabee of Louisville, has long believed that if a consumptive could have proper conveniences and care in the beginning, along with high feeding, the disease could be entirely checked or aborted in many cases. The most terrible mistake is made in sending subjects away for treatment. Home is best, no matter where that home is. Improve it all that is possible, but leave the sufferers among friends.

J. B. Murphy, M.D., of Chicago, read a paper on

INDICATIONS FOR, AND DEMONSTRATIONS OF, REMOVAL OF GASSERIAN GANGLION.

He demonstrated the technic of the operation on a cadaver head. The operation may seem heroic, but heroic measures are necessary in a condition so severe as trigeminal or facial neuralgia. These patients will submit to anything in the hope of relief. Indeed, they have said before the operation, "Doctor, either kill or cure me." He has always suggested some conditional treatment, especially that of castor oil before resorting to so heroic and serious a measure as this operation. This has given temporary relief in several cases.

Dr. A. J. Ochsner, Chicago, had recently given castor oil in cases of facial neuralgia in half-ounce doses, twice daily for ten days or two weeks at a time, and it has thus far proven a most efficient remedy. No case has yet returned to its former severity.

Hugh T. Patrick, M.D., Chicago, read a paper on

ELECTRO-DIAGNOSIS AND ELECTRO-THERAPEUTICS SIMPLIFIED.

Electro-diagnosis is limited to the affirmation or denial of a lesion of the lower neuron; that is, of a lesion of the motor cells in the spinal cord, or of the nerve-fiber, the peripheral nerves springing from those cells. A lesion of this neuron causes the action of degeneration, and this may be recognized by a loss or very considerable diminution of faradic contractions, and by the slow wormlike contraction of the muscles to interruption of the galvanic current. In the electro-therapeutics of organic disease of the nervous system, applications of electricity through the brain may be entirely discarded as useless. Electricity through the spinal cord is little better. In diseases of the peripheral nerves it probably hastens recovery, and that current is to be chosen which better causes muscular contraction. In functional nervous disease electricity is of more practical value than in organic affections, but it is almost impossible to determine what proportion of this good effect is due to mental impression—to suggestion. The galvanic current is chosen for facial and costal neuralgia and sciatica; the faradic for lumbago, hysterical anesthesia, paralysis, and pain; the galvanic for exophthalmic goiter, and sometimes for neurasthenic headache, and backache. For facial spasms, tic, spasmodic torticollis, tremor, and chorea, electricity is useful, aside from the mental effect.

J. Frank, M.D., of Chicago, read a paper on

A NEW METHOD OF FASTENING THE ROUND LIGAMENT IN ALEXANDER'S OPERATION.

An incision an inch long is made midway between the anterior superior spine of the ilium and the spine of the pubes, a trifle above Poupart's ligament. The transversalis muscle is pushed back and the ligament lifted out with a blunt hook. Draw it out until the uterus is in the correct position. Instead of drawing the ligament through the fascia, as formerly practised, it is replaced in its anatomical position beneath the transversalis muscle. By this method a slough of the ligament is prevented. This operation is the simplest of all yet proposed for the purpose. As a suture-material, kangaroo-tendon has proven most satisfactory in his experience. A pessary should be fitted in before the operation, and worn as long afterward as may be deemed necessary by the surgeon.

J. Homer Coulter, M.D., of Chicago, read a paper on

TONSILLOTOMY BY CAUTERY DISSECTION.

With a well-heated, small electro the pillars are dissected away from the tonsil to one-half its extent. The gland is then, with suitable forceps, drawn well out and dissected out to about one-half its extent. This portion is then cut off and the surface treated with a strong solution of silver nitrate. In a week or ten days the other portion of the tonsil is removed in the same manner. This operation will give cosmetic as well as practical results, unobtainable by any other process yet suggested.

Dr. H. W. Loeb of St. Louis, instead of performing so much dissection, removes as much of the tissue as he can get in an electric snare. This is repeated as often as may be necessary to remove all the glandular substance. He thinks the method causes less soreness and less pain than that of Dr. Coulter, and in many cases, particularly children, the results will be just as satisfactory.

W. J. Mayo, M.D., of Rochester, Minn., read a paper entitled

THE SURGICAL TREATMENT OF PYLORIC OBSTRUCTIONS.

He has found the free exhibition of strychnia for several days previous to the operation of great value in preventing

shock. The stomach should always be thoroughly washed out a few hours before the operation, and nothing eaten afterward. For combating the shock, besides strychnia and dry heat, a rectal enema of a pint of hot coffee should be given. Nourishment by the stomach should not be too long withheld afterward. For twenty-four hours rectal alimentation should be used; in thirty-six hours, some champagne; later, buttermilk and a gradually increasing diet.

Dr. A. F. House, Cleveland, opposed the use of the Murphy button, and did not consider it the ideal method, as his experience has been somewhat unsatisfactory. He believed the less foreign matter one gets in the wound in uniting the bowel to the stomach, the better the result.

Dr. A. J. Ochsner, in some twenty cases, had used irrigation of the stomach with decided satisfaction. In this way the patient will sometimes become well enough nourished to stand an operation when it is desirable.

Thos. H. Manley, M.D., of New York, read a paper on

CONDITIONS WHICH MAY SIMULATE ORGANIC OBSTRUCTION OF THE RECTUM.

Norval H. Pierce, M.D., of Chicago, read a paper on

SUBMUCOUS LINEAR CAUTERIZATION; A NEW METHOD FOR REDUCTION OF HYPERTROPHIES OF THE CONCHÆ.

A small incision is made in the hypertrophied membrane; then, with a blunt, flat probe the mucous membrane is carefully separated from the erectile tissue underneath. A sound, the end of which is cup-shaped, and upon which has been fused a few crystals of chromic acid, is inserted in the incision and the track already made by the probe is thus cauterized. There is no hemorrhage and less pain than by any other method. The functional activity of the mucous membrane is not in the least impaired. Patients will submit to this operation more willingly than to the burning of the cautery.

Dr. Coulter suggested the possibility of the chromic acid being left within the operative field, in which case an undesirable slough would necessarily follow. The practice of many rhinologists in using a broad, flat electrode, and destroying a large amount of the mucous membrane, and in not going down to the bone, is to be deplored, as irrational, unscientific, and impracticable.

Dr. H. W. Loeb, St. Louis, had seen blindness result from cauterization of the inferior turbinates, and wished to know if there was danger in the use of the chromic acid.

Dr. Stuckey is able to get the same results as from cocain, without danger and with less systemic disturbance, by the use of a harmless solution of acetanilid.

Dr. Love wished to enter a protest against the indiscriminate and carelesss use of cocain in the nose. There are going about the country to-day hundreds of men and women, miserable victims of the medical profession's careless use of cocain.

Horace H. Grant, M.D., of Louisville, selected for the address on surgery

THE RELATION OF DIAGNOSIS TO FUTURE SURGICAL PROGRESS.

We cannot progress much farther in technic or operative skill. Any great amount of paraphernalia suggests a lack of personal resource in the operator. Almost every part and organ of the human body has been removed. The skiagraph has lately come into importance in surgical work, and it may be an excellent adjunct in many instances. Its recent successes are noteworthy. It is yet, however, in its infancy, and doubtless is capable of still more development. May we not soon expect to see the fetus in utero? No one doorway can open to the royal road to success in the practice of surgery. The skilful and intelligent application of prompt relief, added to a careful diagnosis, will give us the most wonderful and satisfactory results. What each one finds to do, let him do it with his might.

Jas. H. Dunn, M.D., of Minneapolis, presented a paper on

APPENDICITIS; TO OPERATE OR NOT TO OPERATE?

If it were possible to foretell which cases were going to be fatal, this question could be much more easily and satisfactorily decided. The percentage of fatality is yet too high. A certain number of cases will recover without surgical interference. Indeed there is so large a number of such that he believed we very often, in our enthusiasm, operated when it would have been much better to have left them alone, so far as the knife was concerned.

Dr. J. B. Murphy said that in 450 cases he did not think there had been an entire absence of pus in a single instance. He was satisfied there are some cases which can be cured by medicine, but can they be differentiated? By medical treatment we have a mortality of ten per cent., and if we have three per cent. by the knife, then we must operate to save the other seven per cent. Conditions will show whether or not an operation is advisable.

Gustave Futterer, M.D., of Chicago, read a paper on

PLEURITIC EFFUSIONS AND THEIR TREATMENT.

A bacteriological examination should be made in all cases, both with cover-glasses, with culture-media, and by injections of the effusion in animals. Distinguish between exudate and transudate by using the acetic-acid chemical test, and by the same process eliminate mucin. Many cases of pleurisy are of an uric-acid diathesis. These will yield readily to the treatment by the salicylates. He believes that not more than fifteen per cent. of pleuritic cases are rheumatic. The finding of pneumococci does not aggravate the conditions, and often gives no markedly distinct symptoms. Pleurisy in typhoid is not a mixed infection, but a distinct condition. Tubercle bacilli are often found in the pleuritic effusions. Tuberculosis may be differentiated by the agar culture. Hyperesthesia of different parts is frequently present. He has washed out the cavity in fourteen cases with an antiseptic solution of from one-half to two per cent. of clove oil, with gratifying results in twelve of the cases. The advantages of this method are: Many patients will allow such an operation, who would object to an exsection of the rib; no

bulky dressings are constantly interfering with the comfort and convenience of both patient and physician; much shorter time is required.

A. J. Ochsner, M.D., of Chicago, read a paper on

NERVE SUTURES AND OTHER OPERATIONS FOR INJURIES TO THE NERVES OF THE UPPER EXTREMITY.

His conclusions were: (1) Every severed nerve should be sutured even after years. (2) The earlier the operation is performed the better. (3) If neither sensation nor motion is established within a year, the nerve should again be exposed, the cicatricial tissue removed and the end again sutured. (4) The end should be clean-cut, and should contain neither crushed nor cicatricial tissue. (5) Tension must be avoided. (6) The wound must heal without suppuration to secure the best results. (7) Hemorrhage should be perfectly controlled to prevent intervening clot. (8) Carefully prepared catgut is the best suture-material. (9) After suturing the ends, either direct or "a distance," it is well to stitch a fold of fascia over the united nerve-ends. (10) The extremity should be placed at rest. (11) The external incision should be ample,

Henry P. Newman, M.D., of Chicago, read a paper on

WOMAN AND HER DISEASES, VERSUS GYNECOLOGY.

We are coming to a period of transition in the practice of surgical gynecology; instead of essays on the treatment, there are studies on the cure and prevention. Preventive medicine, hygiene, sanitation, and sociology are now popular themes for medical societies. Philanthropy has taken the cue from medicine, and is attempting to form a citizen rather than reform him. Woman's sphere has lately widened, until now it is as wide as man's. Has she equipped herself for this race intelligently? Look at the average woman in the cities; the average stenographer, saleswoman, the business woman, do they not daily outrage their bodies by compliance with the dictates of fashion in food, dress, and habits? A woman's generative organs should not be doomed because she has needed to visit the gynecologist. A good diagnostician must know as much about women as about disease, as much about environment and social and domestic relations as about pelvic lesions. Gynecologists should lead in the reform of those conditions which are detrimental to the health of woman.

F. F. Lawrence, M.D., read a paper on

THE PATHOLOGY AND TREATMENT OF SUPPURATIVE SALPINGITIS.

Seldom will vaginal section be required, and only in carefully selected cases. Hysterectomy is indicated in those cases where abscess of the uterine wall, tuberculous deposits, fibroids, or malignant disease in the fundus are found. As hysterectomy destroys the pelvic floor, it should never be performed except where there is some tangible lesion of the uterus. Abdominal section will be necessary in many cases.

James B. Herrick, M.D., of Chicago, contributed a paper on

THE IMPORTANCE OF PHYSICAL SIGNS OTHER THAN MURMUR, IN THE DIAGNOSIS OF VALVULAR DISEASE OF THE HEART.

Practically, conclusions are usually based upon the presence or absence of endocardial murmurs. This is wrong, for there may be a valvular disease without a distinct murmur being audible. Every valvular lesion must result in hypertrophy and dilatation of the heart behind the valve diseased. An increase in tension of the pulmonary circulation follows any valvular lesion at the mitral orifice and, later, any aortic disease. This will show in increased force of the pulmonic second tone. Stenosis of the orifices of the left heart means a smaller amount of blood in the general arterial circulation, therefore lesened arterial tension. Failure of the right heart is followed by venous congestion, *e.g.*, venous pulse, hepatic and portal congestion, anasarca, etc. Hypertrophy may be recognized by the heaving, forcible, apex-impulse. Epigastric pulsation may call attention to enlarged right heart. The jugular pulse, the hepatic and capillary pulse, are all of diagnostic value. The visible pulse of aortic regurgitation is almost pathognomonic. Palpation is important. Extracardiac causes for murmur, such as might arise in a heart dislocated by pressure or retraction, can usually be excluded by percussion. A weak, aortic sound may be an indication of obstruction. The reduplicated second sound may point to valvular disease. A sharply accentuated first sound at the apex is common in mitral stenosis. The peripheral tones in aortic regurgitation are a valuable confirmation. Error in calling an inorganic murmur organic is readily made unless the secondary sounds are carefully sought for. The intention of the paper was not to undervalue the importance of endocardial murmur, but to insist that it is only by the complexus of signs and symptoms that an accurate diagnosis can be made.

R. H. Babcock, M.D., of Chicago, read a paper entitled

A REPORT OF A CASE ILLUSTRATING THE VALUE OF SECONDARY PHYSICAL SIGNS IN THE DIAGNOSIS OF CARDIAC DISEASES.

Murmurs are the least reliable signs of valvular disease. An accurate diagnosis cannot be made unless the secondary signs of valvular disease are recognized. If the heart actions are not sufficiently strong, there may not be any murmur; or a grave defect may not be observed for the same reasons. Secondary symptoms are: a modified pulse-rate, character, and rhythm, leading to a congestion of the veins and internal organs. In some instances there is also systolic venous pulsation of the liver. Such systolic jugular pulsation is diagnostic of insufficiency, even if the murmur is not audible.

I. N. Love, M.D., of St. Louis, read a paper entitled

WATER.

Drugs, drugs, drugs seemed to be the chief inspiration in the life-work of too many men. Hydropathy has been a wonderful service to humanity. We can appreciate the necessity of water when we remember that seventy-five per cent. of our body is made up of water. Water is just as important as the solids in life's conditions. The de-

mands for water are affected by the amount of muscular exercise and degree of temperature to which the body is exposed. For an irritated stomach or bilious colic nothing is superior to liberal quantities of hot water. For "a night out" two or three cups of hot water, along with a cup or two of hot coffee, nothing is superior. It soothes the nervous system if you will abstain from food a few hours. Water, taken freely, acts as a purifier of the system, by flushing, and by its solvent action. The majority of people drink too little water. He would highly advise training children to drink more water. It is a most important agent in improving the complexion. Medicine should be given in large quantities of water. In typhoid fever he insists upon free drinking of pure water. No solvent will act better in removing uric acid from the system, and the only pure water is distilled water.. Copious draughts of water for its stimulating effect or the reduction of temperature, have been used many years. The hot pack in convulsions of children is often misused. Better begin with a tepid heat and add cold water gradually. Hot water locally in inflammatory conditions is most excellent.

DR. MANLEY of New York, in cystitis, knew of nothing that would take the place of water. He has often thought the surgeon's knife might be laid aside if we knew how to use water. A large number of the cases of appendicitis might be relieved by a thorough washing out of the bowel.

DR. HUGHES of St. Louis, is opposed to limiting the amount of water used at and during the meal-time. Its action is not only eliminative, but stimulating to both kidneys and bowels.

DR. STUCKEY of Louisville, could not see how water would increase or aid in the digestive function in the stomach, but its importance after digestion cannot be overrated.

DR. BABCOCK of Chicago, thought that a sufficient quantity of water might prevent Bright's disease. If the bowels be constipated and the skin dry, increased work is thrown upon the kidney. Professional men, men of sedentary habits, and women, will often escape the severity of Bright's disease by the unlimited use of water.

DR. HENDERSON of St. Paul, wished to ask the author whether or not the taking of large quantities of water will increase the fat formation.

DR. TURCK of Chicago, said the condition of the stomach must be known before the ingestion of large quantities of water was advised. The habit of taking great quantities of water into the stomach, even two hours after a meal, will hinder the process of digestion. On the other hand, if there is an accumulation of material on the walls and other viscera, then the taking of water would not be objectionable.

ISAAC A. ABT, M.D., of Chicago, read a paper on

THE CLINICAL SIGNIFICANCE OF THE CHILD'S FONTANELLE.

In health the fontanelle does not sink below or rise above its boney frame. It has both respiratory and pulsatory movements. With increased intracranial pressure the normal bruit may quite disappear. An early ossification interferes with brain development and produces a brachycephalic skull. In rachitis the involution of the fontanelle is delayed. Marked bulging is caused by the collection of fluid within. The abnormal retraction of the fontanelle always indicates a condition of inanition. If chronic, it is a serious condition. A deeply sunken fontanelle is always a danger signal in any case. Involution occurs normally at from fifteen to eighteen months. Protuberance and tension indicate meningitis.

EDUARD BOECKMANN, M.D., of St. Paul, read a paper on

OPERATIVE TREATMENT OF PTERYGIUM.

He suggested the following operation: A crescentic piece is cut from the pterygium, about five lines from its head. This part is curetted thoroughly down to the sclerotic. The head of the pterygium is dissected off. At the convexity of the piece cut out a stitch is inserted, and the opposing edges drawn together. This leaves the curetted portion to granulate and form a cicatrix. The author thinks the results from this method superior to that of any other in his experience.

WM. H. WILDER. M.D., of Chicago, read a paper on

SUBCONJUNCTIVAL INJECTION IN THE TREATMENT OF CERTAIN DISEASES OF THE EYE.

The method consists in the injection beneath the conjunctiva of minute quantities of bichlorid of mercury or cyanid of mercury in solution. The operation is not especially painful unless there be inflammation present. It has been impossible to get the same good results from the salt injections that can be obtained from the mercury.

W. S. CALDWELL, M.D., of Freeport, Ill., read a paper on

ETHER AND CHLOROFORM.

He gave an extended résumé of the statistics of death from chloroform and ether. He prefers chloroform.

C. B. PARKER. M.D., of Cleveland, O., read a paper on

THE USE OF OXYGEN IN CHLOROFORM NARCOSIS.

Oxygen and chloroform form a mechanical mixture like air. The oxygen must be perfectly pure. The time required to anesthetize is slightly longer than with chloroform, but the advantages far outweigh this minor inconvenience. There is total absence of vomiting, as well as of the extreme pallor and weakened heart beats, with shallow respiration. The duration of the shock from anesthesia is very much shorter. The patient always recovers promptly without any delirium.

W. F. BARCLAY, M.D., of Pittsburg, read a paper on

DISEASES OF THE NOSE AND THROAT IN CHILDREN.

He demonstrated that almost, if not all, of the pathological conditions, in the nose, occurring in later life, have their origin in this condition in childhood. Children should be taught to breathe through the nose rather than the mouth. Parents should be taught that surgery can relieve, very easily, those who are unable to breathe through the nose.

DR. LOVE called attention to the necessity of watching

over the child from earliest infancy and in teaching it to care for its nose. Many infectious diseases, no doubt, have their port of entry through this organ.

Dr. Coulter is convinced that there must be some other reason in producing deflective septum than the bumps that a baby received in infancy.

J. Merrill Ricketts, M.D., of Cincinnati, read a paper entitled

SURGICAL MÉLANGE.

1. Ligation of brachial artery.—Secondary hemorrhage occurred six days after an accident. Five days later another severe hemorrhage occurred. The middle brachial artery was ligated at that time. Six days later a third hemorrhage occurred. Erysipelas followed and recovery was uninterrupted. The superior profunda and its branches were the source of the hemorrhage after the ligature of the brachial. The ligatures should have been applied above the superior profunda.

2. Gunshot wound dividing the facial artery.—Roller compresses were sufficient to control the hemorrhage. Multiple abscesses appeared on the cheek subsequently, one of which left a salivary fistula. This fistula was finally closed by the introduction of a silver wire.

3. Talipes equinus varus of left foot, with external deformity.—Phelp's operation had been made one year previously, with but slight improvement. The astragalus was removed, five weeks later, through the dorsum of the foot. Division of the tendo Achillis was not necessary.

4. Hypertrophied prostate.—On the twenty-fifth day of a severe attack, double orchidectomy was performed under cocain anesthesia. He has found cocain will answer every purpose in these cases. This was the third case in which the same operation had been done. All were successful.

5. Sarcoma of the sacrum.—There was present a syphilitic diathesis. It had been previously diagnosed as a fatty tumor. Complete removal was followed by a prompt recovery, leaving a fistula from the rectum into the cavity. This was successfully closed by a later operation.

Papers were also read by Fenton B. Turck, M.D., of Chicago,

FURTHER REPORT ON THE TREATMENT OF 500 CASES OF GASTRITIS.

Casey A. Wood, M.D., Chicago,

SOME RARE FORMS OF KERATITIS.

A. E. Stearne, M.D., Indianapolis,

THE SIGNIFICANCE AND OCCURRENCE OF CAPILLARY PULSATION IN NERVOUS DISEASES.

G. I. Cullen, M.D., Cincinnati,

THE NEWER REMEDIES IN OTOLOGY, AND THEIR RESULTS.

Dr. Thos. Hunt Stuckey of Louisville, was elected president; Dr. H. W. Loeb of St. Louis, secretary, and Dr. W. N. Wishard, Indianapolis, treasurer.

The next place of meeting was appointed at Louisville, Ky., the third Tuesday of September, 1897.

THE AMERICAN DERMATOLOGICAL ASSOCIATION.

Twentieth Annual Meeting, held at Hot Springs, Va., September 8, 1896.

(Concluded.)

In continuing his paper on the subject "What Effect do Diet and Alcohol have Upon the Causation and Course of the Eczematous Affections and Psoriasis," Dr. White said he did not regard alcohol as an important factor in the causation of eczema, but there is a direct and indirect influence in keeping up the disease. Diet and alcohol have no influence upon the causation and course of psoriasis in general. In exceptional types, they have a temporary importance. It has been claimed by some that the disease can be cured by vegetable diet, while others assert that a purely animal diet is required. Both opinions have been supported by series of cases.

Definite and positive knowledge of the real nature of eczema and psoriasis, has yet to be determined by unbiased observation. Successful treatment must remain largely a matter of empirical experimentation.

Dr. Fordyce thought that we did not have definite proof of the influence of diet and alcohol upon either eczema or psoriasis. In infancy, the tendency to eczema is due largely to the delicacy of the skin. In the early stage of psoriasis, its development may be influenced by alcohol and, perhaps, also by food. In the decline, it can be influenced by almost any drug or any food.

Dr. Jackson had always thought that alcohol aggravated eczema and psoriasis. The patient should be considered apart from his skin disease. The more simple the diet, the sooner would we effect a cure. He had been unable to observe any great difference in patients treated by exclusive forms of diet. It seemed to him the simplicity of the diet was of prime importance.

Dr. Duhring said there was a vast difference between food as a cause of disease and food as an injurious factor in disease. He questioned whether food could be regarded as a cause of eczema, but that it possessed, in many instances, a direct injurious influence upon the disease he had no doubt. He thought our knowledge of eczema more clearly defined than it had been for twenty years. Where eczema and psoriasis are associated, it is an arbitrary occurrence. Certain foods appeared to aggravate eczema which already exists, more so than psoriasis. He referred to a case of psoriasis which confined the man to bed for two years. He tried first exclusive meat diet, and then exclusive vegetable diet, but without avail. An ocean voyage cured the case.

Alcohol was a less potent factor than food. It does not exert much influence in the causation of these diseases.

Dr. Dyer said that in careful investigation of infantile eczema, he found the dietary usually at fault, and proper regulation of the latter might cure while indifferent local treatment was employed. Food probably acted as an etiological factor by causing intestinal fermentation.

Dr. Morrow agreed with Dr. White that food had little effect in the causation. Psoriasis and eczema are

frequent among people whose diet is almost exclusively vegetable, as in Honolulu. Many children with eczema suffer from malassimilation, the food lacking in the proper elements for nutrition. By correction of diet errors, the eczema is improved. Private patients do much better than dispensary cases, because the dietary can be better regulated.

Alcohol has the same injurious action in eczema as in syphilis. Alcoholics suffer from severer types of these diseases. In hospital practice, psoriasis lesions can be removed by proper local treatment, but if the patient went upon a spree when discharged, the eruption would promptly return. Alcohol surely favors relapses.

DR. ALLEN said that in his hospital experience, psoriasis occurred largely among alcoholics, and the manifestations quickly recurred in an aggravated form if alcohol was indulged in. He thought its influence greater than that of food. The converse of this could be considered true for eczema, excepting certain infantile forms. In his dispensary experience, children allowed a mixed and faulty diet, often including beer, tea, and coffee, were apt to develop eczema, and once developed it was aggravated by such diet.

DR. ROBINSON said the molecular constitution of our protoplasm depended upon the kind of food we took. This has been demonstrated in the laboratory. If psoriasis and eczema are regarded as parasitic diseases, and if we admit that organisms require a special soil for their growth, the question arises whether alcohol tends to furnish such a favorable soil. In indigestion, particularly that of fermentation, certain toxins are formed, and from them a toxic eczema might become established. Sugars he had found especially injurious, particularly in children permitted to eat cheap candies. If the diet is regulated and a mild application, such as one containing boric acid, is made, the eczema quickly disappears.

DR. WHITE had stated that there was no demonstration of a direct connection between gout and rheumatism, and psoriasis and eczema. He thought it would be admitted that gouty subjects were pretty sure to have, sooner or later, an interstitial nephritis. Urate of soda has been found upon the skin in cases of gout. Internal treatment directed to the gout may cure an eczema which otherwise will not respond to remedies. In psoriasis, food did not have much influence because its action could be counteracted by internal medication. He relied upon an alkaline condition of the system, and arsenic for a more or less specific effect. Much less alkaline medication was required if the diet was properly regulated. He had seen recovery on exclusive milk and vichy. Indulgence in spirits would determine a relapse. Perhaps the alcohol only made the ground favorable for microörganisms. He said, in closing, that the president's remarks were based on the supposition that we here had a parasitic disease to deal with, while we have no positive knowledge that such is the case. Eczema occurred most frequently in the first year of life when the food was the simplest and most uniform. As the food became complex the frequency decreased. Personally, he did not employ internal treatment in infantile eczema.

DR. DUHRING supplemented his remarks by saying that food influences the nutrition of the skin in eczema in a notable degree, and hence, must be regarded as an important factor in the history of eczema.

The next paper was by J. T. BOWEN, M.D., of Boston, on

MYCOSIS FUNGOIDES AND SARCOMATOSIS.

The paper described cases which illustrated the difficulty which one sometimes encounters in separating these two types of cutaneous affection. A study of cases reported previously, along with those now described, lends weight to the opinion that there are transitional forms between the two affections, as has been already suggested by Kaposi.

DR. WHITE thought we must regard the fugitive character of these lesions as common to both mycosis and sarcoma; certainly the many hundreds of nodules in multiple sarcoma, which disappear in a few weeks, in some instances, under arsenic, are as fugitive as if they disappeared without treatment. The size of lesion is only a matter of degree.

DR. DUHRING had seen many cases of what Dr. Bowen called "mycosis fungoides," but he objected to the name, preferring granuloma fungoides.

DR. FORDYCE said there was nothing very distinctive in the pathological anatomy of mycosis fungoides and certain forms of sarcomatosis. It was well known that there were types of spindle-cell sarcoma, which could be differentiated by the microscope, but mycosis fungoides of the Kaposi type and certain other forms could not be well distinguished, and it was not at all probable that some of these had different origins not yet understood.

In the session devoted to the exhibition of drawings and photographs of rare cases, J. A. FORDYCE, M.D., of New York, showed two water-color sketches of an unusual form of

IODOFORM DERMATITIS

occurring in a man with pulmonary tuberculosis, following the application of the drug to a contused wound of the finger. The eruption consisted of large patches of grouped tubercles, papules, papulo-vesicles, pustules, and elevated erythematous spots involving the hands, forearms, neck, and face. A colored drawing showing almost identical lesions from the internal use of iodid of potassium was also shown.

MULTIPLE PAPILLOMATOUS TUMORS

were illustrated by several colored drawings.

DR. WHITE said that in a series of cases of iodoform poisoning he had failed to observe the appearances shown in Dr. Fordyce's drawing.

DR. DUHRING complimented Dr. Fordyce on the skill shown in his microphotographic work.

DR. MORROW had seen bullous lesions from the topical application of iodoform. Lesions on the face were probably due to local transfer from the point of application, rather than from systemic effect.

DR. ALLEN said he had observed appearances quite similar to those depicted, also from the application of iodoform to a crushed finger. He had seen a number of

severe iodoform eruptions following application of the drug to crushed members, so that he had come to believe there might be a peculiar connection between such injuries and the occurrence of the dermatitis. In some instances he thought lesions at a distance depended upon absorption of the toxic drug.

Dr. Fordyce thought the presence of tuberculosis accounted for the severity of the symptoms. He had twice seen the application of iodoform to a crushed finger produce a bullous eruption on the face, arms, scrotum, and legs.

Dr. Morrow presented colored photographs of the

PRE-MYCOTIC STAGE OF MYCOSIS FUNGOIDES.

The case had been under observation for two years. The eruption was always of the urticarial type, but had undergone marked changes. As erythematous spots, enlarged by peripheric extension, and disappeared, new ones would take their place. Treatment by the toxins of erysipelas had aggravated the condition.

Dr. Duhring considered the salmon color rather characteristic of granuloma fungoides. Dr. White spoke of a case showing brown patches, which had been sent to the hospital with the diagnosis leprosy.

Dr. Dyer of New Orleans, presented photographs of unusual conditions in the negro, such as leprosy; the marked tendency of scars to develop into keloid; tinea circinata; alopecia areata, the only instance he had ever seen in one of this race; an unusual type of leukemia in a young girl, etc.

A. R. Robinson, M.D., of New York, presented the next paper upon

XANTHOMA DIABETICORUM.

The patient whose case was described, and of whose eruption colored photographs were shown, was a woman who had her first attack in 1891. The eruption at this time appeared upon the anterior surfaces of both forearms and upon the elbows, with a few lesions upon the knees. All disappeared excepting those upon the elbows, and remained away for several months.

In the attack now described, about 150 lesions occupy space between the wrist and midway between the elbow- and shoulder-joints. They are from pin-point to pin-head size, elevated, light yellow, with faint tinge of red. Pressure develops yellow tinge, but the red returns on its removal. Grouping is well marked in spots. Over the elbow is a patch 1½ inches in diameter composed of about fourteen small groups. No lesions on palms. Upon legs, about fifty lesions on each side, extending from middle of the thigh to below the knee. No lesions on eyelids or other part of face. No history of diabetes in the family. The urine is strongly acid, has a specific gravity of 1023, and contains twenty per cent., by bulk, of albumin. Sugar test is negative, but urine is said, by the chemist, to be of "glycosuric nature."

In the discussion, Dr. Duhring said a case with similar lesions, so small as to render diagnosis difficult, had recently been seen by him. Under antidiabetic treatment the papules disappeared, but returned when ordinary diet was resumed.

Dr. Morrow said that sugar was not always present in these cases. He cited Besnier's case, which had been observed for several months without sugar being discovered. In another instance sugar was found only after breakfast.

Dr. Fordyce had seen a similar case in Dr. Elliot's clinic.

Dr. Allen thought sugar would be found in Dr. Robinson's case in time. He had seen intermittent glycosuria without skin eruptions.

Dr. Morrow said it was well known that diabetics frequently develop interstitial nephritis, and if the sugar has previously disappeared it is apt to return at such time.

C. W. Allen, M.D., of New York, read upon

SOME GLYCOSURIC DERMATOSES.

If the dermatoses, which have been called by the French *diabétides*, were in the main pathognomonic of the underlying condition which their presence suggests, the term might well take its place along with the syphilides, scrofulides, tuberculides, and leprides. The chief objection which the writer offers to this is that the eruptions occur in the presence of the symptom of glycosuria, which is not to be confounded with the disease diabetes, and hence the term is a misnomer. A number of instances were related in which skin eruptions occurred coincidentally with sugar in the urine, and some which disappeared when the urine became sugar-free. In one case multiple gangrene, extending over limited areas of the skin surface, had been observed. The patient had undergone several such attacks at times when the percentage of sugar was notably high. A peculiar bronzing of the skin had occurred upon the surrounding areas affected, and a marked hairy growth had taken place in a number of these pigmented spots. In one case the lesions had closely simulated those of acne varioloformis of Hebra, but had occurred in other regions than those usually occupied by the latter disease.

While glycosuria is a symptom of a variety of different conditions, originating in different organs of the body, and still far from being understood, it is attended with a series of cutaneous manifestations which are at times almost enough in themselves to warrant a diagnosis of the presence of sugar. We know as yet of but few cutaneous manifestations which are so pathognomonic or peculiar to diabetes as to warrant us in making of them a class by themselves.

DISCUSSION.

Dr. White said that a furuncular diathesis was not a necessity, since the skin in these cases furnished a good nidus for the development of furunculous coccus. The reader had failed to mention the very acute eczema of the genital regions in stout diabetic women. He had often noted an intensely acute form of erythematous eczema or dermatitis, which possessed a very evanescent character. He came to look upon this dermatitis as characteristic of diabetes.

Dr. Morrow said these eruptions had been explained on the assumption that they were due to the local contact of saccharine urine and the products of its decomposition affording the development of certain fungi and parasitic

growths. This would not explain eruptive troubles upon the distant parts. The presence of sugar in the blood modifies its power of maintaining the nutrition of the tissues. He found many of the eruptions could be explained in the same way as drug eruptions—by the presence of a foreign substance in the blood.

I. DYER, M.D., of New Orleans, reported an interesting case of

HYPERTROPHIC ROSACEA (PACHYDERMATOSIS) RESEMBLING TUBERCULAR LEPROSY, CURED WITH THYROID EXTRACT.

Many of the symptoms resembled those of leprosy, which is so prevalent in that part of the country in which the case occurred. The patient was a farmer, sixty years of age, giving scant family history, and complaining but little of the itching and annoyance of the eruption, but seeking relief more for the cosmetic effect. There was marked infitration of the face and back of the hands, to which regions eruption was limited. The patient's general health was, and had always been, good. A photograph was presented, showing the great thickening of the skin in rugæ, running for the most part in parallel lines, a pencil's breadth apart, crossing each other at points one-half inch distant, more or less, from each other. There was much itching, and extensive scaling. The color was red rather than brownish or bronzed, as one would expect to find in tubercular leprosy. Then, too, there were no tubercles nor telangecteses. Various forms of treatment were tried without beneficial results. The diagnosis was suggested by a picture in the "Atlas of the St. Louis Hospital Museum of Paris," which appeared to be a counterpart of the writer's case. Thyroid extract tablets, five grains each, were given three times a day, and continued over several months, with some intervals. Under this treatment the skin became soft and normal to the touch, and in general appearance. The photographs presented showed a marked change in the patient's appearance after treatment.

No longer could confusion with tubercular leprosy be made. Besides the other points, which would exclude leprosy, were the limitation to the exposed regions, the absence of trophic changes, and the total absence of true tubercles.

In discussing Dr. Dyer's paper, Dr. White said that the appearance presented in the photographs and from the description did not recall to his mind any case of ordinary pachydermia which he had seen. He asked if there were other evidences of myxedema present than those suggested by the photograph.

DR. DUHRING could not accept the diagnosis of hypertrophic rosacea, while the term pachydermatosis seemed to him quite appropriate. Dr. Jackson favored the diagnosis of mild myxedema, in which view Dr. Fordyce concurred. In closing, Dr. Dyer said that there had been no evidence to warrant a diagnosis of myxedema. He had changed his designation to hypertrophic rosacea, after seeing the plate so entitled in the "Atlas of the St. Louis Museum Collection of Wax Models." There had been no evidences of cellular edema. The hypertrophy had developed gradually and had lasted for nineteen years. There was no enlargement of the thyroid gland.

THE RELATION OF DERMATITIS HERPETIFORMIS TO ERYTHEMA MULTIFORME AND PEMPHIGUS,

was the paper next presented by DR. DUHRING, who concluded (1) that dermatitis herpetiformis was, in most instances, a disease with well-defined, tolerably constant clinical features; (2) that, in most instances, it was more closely allied in nature to erythema multiforme than to any other disease; (3) that the bullous variety of dermatitis herpetiformis possessed features that resembled those of pemphigus vulgaris, from which latter disease, however, it differed in the peculiar inflammatory and herpetiform character of the cutaneous lesions, as well as in the tendency to polymorphism, the irregular evolution of the lesions, and in its course.

DR. FORDYCE thought all dermatologists in this country recognized the existence of dermatitis herpetiformis. In a case recently seen with multiform lesions, bullæ, and pigmentation, a chronic nephritis was present, which he thought was the cause, by keeping certain chemical products in the system, of the irritation of the skin.

DR. ROBINSON thought it an unfortunate use of the term dermatitis. When multiformis was added to it, it had no meaning at all. He therefore preferred "herpetiformis." The neurotic nature had not been accepted. He regarded it as a toxic manifestation through the vascular system, or perhaps the nervous system.

Dr. J. C. White of Boston was chosen president, Dr. L. A. Duhring of Philadelphia, vice-president, and Dr. J. T. Bowen of Boston, secretary and treasurer.

REVIEWS.

WHITAKER'S ANATOMICAL MODEL: A Pictorial Representation of the Human Form and its Organs, with descriptive text. By DR. SCHMIDT. Thomas Whitaker, publisher, Bible House, New York.

THIS is an attempt to give the reader a pictorial representation of the human body and its organs by superimposed pictures, giving the appearance of the human body as it appears in sections made at various levels. The book is one of a series edited by William S. Furneaux.

ANATOMY OF THE HUMAN HEAD AND NECK is another volume in the same series. They are valuable for school-children who are studying physiology, and may be of service also in training-schools for nurses.

REFERENCE AND TEXT-BOOK. By C. HENRI LEONARD. Fortieth thousand. Illustrated Medical Journal Co., publishers, Detroit.

THIS is a new and enlarged edition of the *multum in parvo* reference- and dose-book. It is printed on very thin paper, bound in red leather, flexible covers, round corners, adapted for the pocket. Besides giving the doses of over three thousand preparations, it has numerous tables.

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ORIGINAL ARTICLES.

DISEASE OF THE ACCESSORY CAVITIES OF THE NOSE.[1]

By GEO. M. PEAVLER, M.D.,
OF BRISTOL, TENN.

IT is only in very recent times that much attention has been given to disease of the accessory cavities. This seems a little remarkable when we consider that this is the most serious of all nasal disorders, is of very common occurrence, and presents symptoms that are very pronounced, very annoying to the patient, and easily recognized by the physician. The accessory sinuses, four in number on either side, are the maxillary, the frontal, the ethmoidal, and the sphenoidal. These communicate with the nasal cavities proper, through small openings which allow of an interchange of air during health, and through which pus is discharged into the nasal chambers during disease of these sinuses. We believe that these cavities have no very important physiological function. While they are known to serve as reservoirs for warm air, and in this way contribute a little warmth and moisture to the air taken into the lungs, yet the air emptied from these cavities is so small in amount, compared with the volume of air taken in at each inspiration, that it must be considered as insignificant physiologically. We think the real design of these cavities was to afford lightness to the bones of the face without compromising their strength or symmetry.

Any of these cavities may become diseased, which is usually made known by a purulent discharge from the nose, more or less offensive in character, and which does not yield to ordinary treatment. Such chronic discharges never come from the mucous membrane of the nasal fossa, for the ordinary forms of chronic rhinitis are not accompanied by a purulent discharge; and when pus is found coming from the nasal cavities it may be accepted as conclusive evidence of diseased bone; and, on inspection, it will nearly always be found that the pus is running from one of the accessory sinuses. The matter discharged from the diseased sinus may vary in its consistency, and odor, as well as in the frequency of the discharge.

An analysis of the cases occurring in our practice for the past five years shows the total number of patients suffering from disease of the accessory cavities to be thirty-five. Of these thirty-five cases there were twenty-four cases of disease of the antrum of Highmore, ten cases of ethmoid disease, and one case of disease of the sphenoid cells. After having seen several cases of chronic empyema we were led to observe that, in the majority of the cases where the disease was of long duration, mucous polypi were found in the nose. We readily concluded that this was not accidental; but that the empyema stood in a causative relation to the intranasal tumors. Extended observation has greatly strengthened us in this belief. For out of a total of thirty-five cases of empyema polypi were present in twelve, or about thirty-four per cent. of the whole number. Eliminating from the calculation cases of less than one year's standing, and basing our estimate on the chronic cases alone, we find mucous polypi to have been present in about sixty-three per cent. of such cases. It would appear that polypi are most likely to be found where disease has existed for some time; and that they are found associated with disease of the ethmoid cells more frequently than elsewhere. Of the ten cases of ethmoid disease polypoid growths were present in seven. Grünwald has recorded seventy cases of accessory sinus disease. Of these seventy cases polypi were present in thirty-three, or forty-seven per cent. As his cases were all grouped together we have reason to believe that the percentage would have been much higher had the cases of recent standing been excluded from the calculation. Hence we reach this practical conclusion: That in quite a large percentage of the cases where polypi are found they are the result of chronic suppuration; and that the presence of such growths should always lead one to suspect that there is diseased bone, and hence calls for an inspection of the accessory sinuses. The antrum of Highmore, and the ethmoid cells, furnish by far the greatest number of empyemas.

As to the etiology of antrum disease we shall say only a few words. That carious teeth are often the primary cause of pus in the antrum we have no reason to doubt; and this important fact must not be lost sight of in studying the etiology of a case. Quite a large proportion of the cases

[1] Read before the Tennessee State Medical Society, April, 1896.

of empyema owe their existence to an abnormal or disordered condition of the nasal cavities. Many patients date the beginning of their ailments from the taking of a severe cold or the grip. During the stage of active inflammation there is an excessive outflow of mucus or mucopus into the antral cavity; and the swelling of the mucous tissue around the orifice, together with the swelling of the turbinated tissues in the nose, causes a retention of these inflammatory products, and thereby results the condition of empyema, which becomes chronic and persistent. Stenosis of the nasal cavity, by whatever cause produced, is liable to be followed by disease of the antrum. Hence nasal tumors, hypertrophic rhinitis, foreign bodies, and traumatisms, may all indirectly lead to antral disease by closing the hiatus, causing the retention of decomposing secretions. Deflection of the nasal septum, which makes one respiratory chamber unusually large at the expense of closing the other, can in the same way lead to antral disease on the side of the closed nostril.

The symptoms observed in the course of this disease are not always sufficient to establish a diagnosis beyond a question of doubt. In most cases, however, the symptoms are marked, and the evidences of disease are unmistakable. There is in some cases a sense of pain about the cheek, radiating pains about the eye, and pain or soreness in the teeth, when pressure is made over the canine fossa. When there is a closure of the hiatus and a retention of the secretions, there is apt to be distention, extreme tenderness, and a bulging upward of the floor of the orbit, causing exophthalmos and double vision. The discharge from the nose is a very annoying symptom, necessitating the frequent use of the handkerchief. The pus is generally thick like cream, and often has a fetid disagreeable odor. This incessant filthy discharge is the most unpleasant of all the symptoms, and is the one which usually drives the patient to seek relief. If firm and equal pressure be made over the two antra, one healthy and the other diseased, a difference in sensation is experienced by the patient; the comparison shows a tenderness on the diseased side; the obtuse sensation lasting for a time after the pressure has been removed. This is a diagnostic point on which I have learned to place a good deal of reliance; and a careful rhinoscopic examination will be likely to reveal a discharge of pus, creamy in color and consistency, running from the region of the middle meatus. This pus when wiped away will sometimes quickly reappear at the same point, and can thus be seen trickling down from the natural opening. By a bending forward of the head the flow of pus from the antrum will be accelerated; a fact to which attention was called by Boyer. It should not be forgotten that the infundibulum has its opening in the middle meatus, not far from the antral opening; and hence a purulent discharge from the frontal sinus would show itself in nearly the same locality as one from the antrum of Highmore.

In our endeavors to obtain facts from which we can make a correct diagnosis we may often adopt the following procedure with good results. The nasal cavity is thoroughly cleansed of all secretions, a four per cent. solution of cocain is then applied for the twofold purpose of shrinking the tissues and producing local anesthesia. We take a syringe holding about two drams. To this there is fitted a long narrow cannula which is bent at a right angle, near the distal end. The syringe is filled with fluid, the cannula introduced into the nose, and the bent point slipped along the middle meatus until it drops into the antral opening. The fluid is then injected into the antrum, and if pus is present it can be seen to pour out from the ostium maxillare as the fluid enters. The pus thus discharged usually has a foamy appearance, owing to its sudden mingling with the fluid injected. Deviations of the septum and other hypertrophic changes will occasionally hinder us in making this test.

Where any uncertainty exists we may open the antrum. The perforation can be made through the nose by penetrating the outer wall through the inferior or middle meatus, or through the alveolar process after the removal of a tooth, or preferably in the canine fossa. In this way we are able to find the pus if there be any, and having found it, we already have an opening through which we can proceed to medicate the diseased cavity.

Opening of the antrum from the nasal fossa does not afford thorough drainage, for the reason that the floor of the antrum is lower than that of the nose. The opening presents difficulties in keeping it from closing and is not convenient of access. The most serious objection to boring upward through the alveolar process is that a tooth must nearly always be sacrificed in the procedure. Again, the wound has to be plugged to prevent food from entering the cavity; and by closing the hole with a plug we have, in a degree, thwarted the purpose for which the operation was done. I prefer to enter the cavity at a point a little above and between the roots of the second bi-

cuspid and first molar teeth. If the first molar is out we prefer to enter directly above, or through the lower portion of the malar ridge. A pledget of cotton, saturated with a ten per cent. solution of cocain, is placed on the spot selected for the operation. After a few minutes the cotton is removed, and a few drops of a four per cent. solution is injected into the submucous tissue; a small amount of the solution should be injected beneath the periosteum, which can always be done by a proper manipulation of the needle. In ten minutes the local anesthesia is completed to an extent that the perforation can be made almost without pain. The drill, or trephine, whether run by an electric motor or by hand, is passed in a direction upward, backward, and inward, making an opening of sufficient size for the easy irrigation and medication of the diseased cavity.

After the opening has been made the important question arises as to how it shall be kept open; and by what means the diseased cavity is to be irrigated. The old method of fastening the tube into the opening by wiring it to the teeth was bunglesome and unsatisfactory. We have devised a means of treating these antrum troubles, which offers some advantages over other methods, and is, at the same time, free from some of their disagreeable features. We use a tube which is self-retaining, and can be worn for months without discomfort or inconvenience to the patient. The irrigation is done by the patient himself, and as many times a day as is thought necessary. The opening in the antral wall is made by a drill of definite size, about five millimeters in diameter. The tube is made of a size to fit exactly the opening made by the drill, and is slightly swollen on the distal end so as to make it self-retaining. To prevent it going too far into the cavity, as well as to prevent the end projecting into the buccal cavity from becoming covered over with mucous membrane, this extremity of the tube is provided with a head or smooth rim. This end of the tube is also sloped so as to make it lie smoothly against this slanting bone-surface through which it passes. The tube is made of silver, and is five-eighths of an inch in length. It is introduced by means of a pilot. The tube being in position the patient takes fluid into his mouth, and by a pumping motion of the cheeks causes it to pass rapidly into the antrum, and thence by the natural opening into the nose. In this way several ounces of fluid can be passed through the cavity in a few minutes. The patient should be ordered to do this several times a day.

The irrigation in the chronic cases has usually to be kept up through a long period, in some instances for a year or two. Where the case progresses unfavorably, the symptoms showing no sign of abatement, it will be found best to enlarge the opening to an extent that the cavity can be carefully explored. If polypi are found they should be removed; membranous partitions should be broken down if present, and dead bone surfaces carefully curetted. When the mucous membrane is much thickened, and covered with fungosities, and flabby granulations, due to long-continued suppuration, it should be curetted carefully throughout the whole cavity.

The treatment of ethmoid disease is mainly surgical. The aim is to reach the diseased cavities and effect their free drainage, as well as a removal of the carious bone. There are two pathological conditions, either of which may hinder our approach to the seat of trouble. It is quite usual in these cases to find hypertrophy of the middle turbinated body sufficient to conceal all view of the parts beyond it. It is no less common, especially in the chronic cases, to find the nose blocked with mucous polypi. In either case the first thing to do is to remove the hypertrophic conditions, and thus effect an unobstructed entrance to the diseased sinuses. By careful inspection and use of the probe we can usually locate the source of the discharge. In operating on these cells our aim should be to do thorough work, remembering at the same time the delicate structures that surround the field of operation. In front and toward the medium line we have the cribriform plate and olfactory nerves. To the outer side is the infundibulum, and a frail bone tissue, which separates the cells from the orbit. In doing these operations we should take our bearings carefully and proceed cautiously. The curette is the instrument best suited for removing the diseased tissue. Forceps are likewise useful, and, as a supplement to the curette, afford a safe means of removing the carious bone. With these instruments we can, as it were, feel our way, and by this tactile sense we are able to discriminate between healthy and diseased structures. A rough or grating sensation will indicate that the probe is in contact with carious bone. Thorough removal of all diseased tissue is the end to be sought, and to accomplish this we may have to repeat our operations from time to time, as the work is not likely to be completed at one sitting, especially if done under local anesthesia.

In addition to the surgical treatment the nasal fossa must be kept clean. The foul accumula-

tions should be washed away by frequent irrigation with some mild antiseptic solution. This will add greatly to the patient's comfort and be of material aid to the surgical treatment.

THE TREATMENT OF SYPHILIS BY MEANS OF THE TOXINS OF ERYSIPELAS AND THE BACILLUS PRODIGIOSUS.

By ROBERT H. GREENE, A.M., M.D.,
OF NEW YORK;
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CASES have been reported by Mauriac[1] and Rudolph[2] of individuals who, while suffering from the cutaneous manifestations of syphilis, have been attacked by erysipelas, the result being the disappearance of the syphilitic eruption from the skin. The perusal of this literature as well as of the articles of Coley[3] on the treatment of sarcoma by means of the toxins of erysipelas and *Bacillus prodigiosus*, led the writer to experiment with these toxins in the treatment of syphilis. While the number of cases experimented upon, the histories of which are recorded below, are insufficient data from which to draw a positive conclusion, the tentative conclusions arrived at by the author are as follows:

(1) These toxins can be administered hypodermically in proper doses, with no danger of the formation of an abscess at the point of the injection, and with practically no danger of any serious constitutional reaction following their administration. (2) That in almost every case changes in the appearance of the cutaneous manifestations of syphilis macroscopically can be plainly observed in from forty-eight to seventy-two hours after the commencement of the injections. (3) That it is apparently at the present time extremely difficult to procure solutions containing these toxins of any uniformity of strength, one preparation producing rapid changes, another slight changes. It is to be regretted that in taking clinical notes of the cases, the proper record concerning the administration of the different supplies of the toxins was not kept, the necessity for this record not being as apparent when the investigations were first begun as developed later. (4) The reappearance of the cutaneous eruption in two cases would tend to show that we must not conclude from the simple disappearance of the cutaneous manifestations, that any permanent change has taken place in the course of the disease. When erysipelas itself apparently caused the resolution of the cutaneous manifestations, as reported in the histories of the cases of Mauriac and Rudolph, fresh eruptions appeared later on.

It was found extremely difficult to keep these patients under observation as long as was desirable, from the fact that they were not confined in hospitals, that they principally belonged to the floating population of New York, and in several instances having obtained employment outside of the city, were on that account removed from observation. I wish to express my deep gratitude to Dr. Coley, who very kindly presented me with the solutions which I used in these cases, being identical with those which he had found of benefit in cases of sarcoma under his care, and also for kindly advice concerning the administration of the toxins.

I was supplied by Dr. Coley with two solutions, one that had been filtered and sterilized by the addition of an antiseptic, the other sterilized by heat and unfiltered. I used, during the latter part of my experiments, the unfiltered preparation exclusively.

CASE I.—April 9, 1896. J. M., aged twenty-nine; occupation, mason. First appearance of the initial lesion occurred July 15, 1895. This, according to his history, was followed by spots on the body five or six weeks later. Since that time he has been almost continually under treatment by means of pills, liquid medicine, and inunctions; had been in the Philadelphia Hospital for some time, and treated by divers physicians, privately and in dispensaries. Four weeks previously the present eruption appeared, while he was still taking small pills. He has pain on the top of his head, much worse at night, sleeps poorly, and his legs are weak. He has become reduced in weight from 174 to 135 pounds; has large scaling syphilid on left shoulder and on right temple, and a few large flat papules on forehead. One minim of filtered solution was administered in the left shoulder.

April 10th: Eruption commencing to fade. Complains of sleeplessness. One minim filtered solution.

April 11th: Eruption about the same; no change. One minim.

April 12th: Eruption fading; complains of general feeling of malaise. Did not administer solution.

April 14th: Feeling better; sleeping better. Administered one minim.

April 15th: Administered two minims.

NOTE made May 9th.—Have not seen patient since April 15th. At that time, eruption had entirely faded, and had been fading regularly since

[1] "Étude Clinique sur l'Influence Curative de l'Erysipèle dans la Syphilis," Paris. 1873.
[2] Dr. Rudolph of Magdeburg, *Centralblatt f. Innere Medicin*, February 1, 1896.
[3] The indications for non-operative local treatment of tumors; the value of toxins.—W. B. Coley, M.D., N. Y. State Med. Assoc., October 16, 1895.

the commencement of the administration of the toxin.

Case II.—J. R., first seen April 16, 1896, gives history of initial lesion three months ago. At present he has a general glandular adenopathy, erythematous syphilids, a few moist papules and condylomata around anus, sore throat, pain in legs, etc. Administered two minims filtered solution.

From the 17th to the 21st, there was an increase of one minim in the administration each day. On the latter date, the pain had disappeared; glandular adenopathy diminished; condylomata and papules had almost entirely disappeared. From the 22d, when seven minims were administered, there was a daily increase of one minim until the 27th. On that date, the 28th and the 29th, twelve minims were administered. May 8th: Patient was discharged with no evidence of syphilis apparent anywhere, except that the very slightest enlargement of the inguinal glands could be felt.

On May 16th and June 7th, there was no evidence of any return.

Case III.—J. M., first seen May 2, 1896; aged thirty-four; occupation, laborer. History of initial lesion seven years ago, followed by cutaneous manifestations which persisted most of the time during three years. Never had any treatment. The present cutaneous manifestations have only recently appeared. Headache, worse at night; numerous scars; a number of large flat papular syphilids on body; scrotum covered with moist excoriations. Gave five minims of the filtered solution.

On May 4th, six minims were given; May 5th, seven (complains of headache and backache); May 6th, eight (syphilitic papules fading); May 7th, nine; May 8th, ten; May 9th, five, of the unfiltered. Papules had then almost disappeared; some headache and pain in shins; pains better than for several days; scrotum is entirely healed; only application having been of pure vaselin.

On May 10th and 11th, five minims unfiltered were administered, and from the 12th to the 16th inclusive ten minims daily were administered.

May 20th: A few flat papules have made their appearance on back of neck. Has had no headache or backache. Occasionally has pain in legs. Three days ago gums began to be sore; has slight excoriation of gum on front of left incisor. Gave ten minims of the unfiltered.

May 21st: Large flat papules, which had made their appearance on back of neck, are much dried up, and have become scaly since the day before.

May 22d: Ten minims of unfiltered solution; papules drying up.

May 28th: No indications of syphilis outside of the old scars, except the stains of the flat papules between the legs, and the papules on the neck. These are scaly, and present about the same appearance as when last seen. Gave ten minims of the unfiltered.

Note.—Patient has not been seen by me since the 28th of May.

Case IV.—P. M., aged twenty-six. May 2, 1896. Has elevated and excoriated chancre on outside of glans penis, as large in circumference as a quarter of a dollar; glandular adenopathy; erythematous syphilid; a few small miliary papules on both the anterior and posterior surfaces of the body. Injected five minims of the filtered solution.

May 3d: Surface of chancre changed in color, from bright red to pink.

May 4th: The chancre is healing. Six minims.

May 5th: Gave seven minims. Eruption has faded in a marked manner; erythema practically disappeared; papules diminishing in number; feels better.

On the 6th, 7th, and 8th, ten minims were administered daily.

May 9th: Five minims of the unfiltered. Eruption has disappeared from front of body; chancre has much less irritated appearance, and there is a slight red zone surrounding it. Patient feels very well.

On the 10th and 11th, six minims unfiltered were administered daily.

May 12th: Five minims unfiltered. Patient has a bad headache, frontal, came on at four in the afternoon of May 11th, and during the night felt chilly and had fever. At present (12 M.) no pain; has oral temperature of 99° F.; eruption apparently slightly more prominent on neck.

May 13th: Headache. Had no injection.

May 14th: Better; no injection.

May 15th: Five minims of the unfiltered (slight headache).

May 16th: Five minims of the unfiltered; chancre healing; headache at 4 P.M.

May 17th: Chancre healing in a marked degree; body clear. Omitted injection.

May 18th: Injection of two minims unfiltered.

May 19th: Two minims unfiltered; slight headache.

On May 20th, gave two minims unfiltered.

May 21st: Four minims unfiltered (complained of no headache the day before).

On the 22d, 23d, and 24th, three minims. All cutaneous evidences of syphilis have disappeared, except slight scab on chancre.

On the 25th and 26th, three minims were administered.

May 27th: Having exhausted my supply of Coley's solution, used five minims of plain erysipelas toxin.

May 28th: Gave ten minims of same solution.

May 29th: Slight headache, beginning the day before at 3.30 P.M., continuing till 10 A.M.; slight injection having been administered at 10 A.M.

June 3d: Discharged, with no evidence of syphilis, except very slightest enlargement of the inguinal glands to be felt. Ordered him to report once a week.

Note.—Patient reported for observation once

or twice during the early summer, with no indications of any return of the cutaneous manifestations. He has not been seen since.

Case V.—May 16th. W. O. B., aged twenty-three. Six years ago initial lesion on penis, sore throat, tongue, etc. Had been treated at Bellevue. One year ago had sore come out on elbow, which had been under treatment ever since by various physicians in dispensaries. The history given was that it would improve somewhat and then grow worse, but it never entirely healed since it first made its appearance. Two weeks ago, sore on the penis made its appearance. Has gumma size of a dollar, just above left elbow; has another on top of glans penis, which has eaten away the tissues to the depth of a quarter of an inch; was presented to Dr. Joseph Collins for inspection. Two minims of the unfiltered were injected.

May 17th: Patient did not appear.

May 18th: Marked change has taken place in appearance of gumma on elbow; it was dried up to a considerable extent. Gumma on penis apparently about the same. Patient states that elbow has not been so dry in a year and a half. No headache. Four minims of the unfiltered injected.

May 19th: Gumma on penis healing. Four minims of the unfiltered.

May 20th: Did not appear.

May 21st: Patient states that he has been ill with a headache, which came on the night of the 19th; the toxins were administered in the forenoon of that day; gumma on elbow much improved; patient states that it is no longer sore when he leans on it; gumma on penis previously excoriated, covered with a dry scab. Administered five minims of the unfiltered.

May 23d: Patient did not appear on the 22d; states that he had severe headache, accompanied with shooting pains, which came on about 8 P.M. on the evening of the 21st, and which lasted all night; did not have headache the night of the 22d. Administered two minims of the unfiltered. Both gummata have improved.

May 31st: Has been in the penitentiary since last seen, and has had no treatment of any kind in the interim. Gumma on penis is almost entirely healed; gumma on elbow, which had previously scabbed over, has lost its scab on the upper half, and there is a profuse gummy exudate. It is not in as good condition as when last seen. Administered ten minims of unfiltered.

June 1st: Has had severe headache and pain in bones since eight o'clock last night. Gumma on elbow has less irritated appearance. Patient states that he sleeps better than before having the treatment. Administered four minims of unfiltered.

June 3d: Has had no headache since last night. Administered three minims of the unfiltered.

From the 4th to the 6th, three minims of the unfiltered were administered daily; from the 7th to the 10th, five, when the gumma improved, filling in centrally from the edges.

Note.—September 25th. This patient has not been seen by me since June 10th. At that time, if my memory is correct, although there is no note in history book, the gumma on penis had healed. There had not apparently been as much improvement in the condition of the gumma on elbow from May 31st to June 10th, as there had been from May 16th to May 23d. Whether that may have been owing to the fact that I was using a different preparation of the solution during the second period, or whether the apparent usefulness of the injections had ceased, I am unable to state. This large gumma on the elbow was apparently healing in the same manner as the large chancre healed in Case IV, by the formation of a red zone around it on the outside showing, I presume, an increased phagocytosis. There was gradual filling in toward the center.

Case VI. — J. McC., May 20, 1896; aged twenty; occupation, laborer. Initial lesion nine months ago. Two months ago (?) phimosis. General glandular adenopathy; very extreme enlargement of the glands of the left inguinal region; large number of papular syphilids scattered generally over the body; had had no treatment; sleeps well; has headache and sore throat. Administered two minims of unfiltered.

May 21st: Administered three minims of the unfiltered. No perceptible difference to be observed; had some headache.

May 22d: Papules much faded; patient states that some have become scaly that were not so before; large glandular enlargement in left groin considerably diminished. Administered five minims of the unfiltered.

May 26th: Administered five minims unfiltered; May 27th, ten (papules much faded; swelling of foreskin improving).

May 28th and 29th, being out of solution, gave ten minims of plain erysipelas toxin. No change.

June 21st: Eruption fading slightly; patient thinks a few new papules have appeared around anus.

From June 2d to June 10th, four minims of the unfiltered were administered. Then the patient was doing well; gained five pounds in weight; no sore throat; large number of the old papules have disappeared leaving stains; inguinal glands much diminished in size; extreme enlargement of those on the left side having disappeared.

On June 11th, there were administered five minims; 12th, four; 15th, six; from the 18th to the 26th, ten minims daily.

From June 27th to July 10th, ten minims daily of new solution.

Note.—At this time, not having seen much improvement, in fact very little, if any, change, either for the better or worse since the 10th of June, I felt that it was a duty I owed to the patient to adopt some more certain method of relief, and I stopped the administration of the toxins

and put him on inunctions of mercurial ointment, and a tonic. I saw him a few times after that, during which time he had improved somewhat, and then lost track of him through my absence from the city.

Case VII.—May 26, 1896. E. A., aged twenty-three; occupation, truckman. History of initial lesion three months ago; sore throat for a month; two weeks ago spots on body. Has marked erythema all over the body, and general glandular adenopathy. Five minims unfiltered.

May 27th: No perceptible change; gave five minims plain erysipelas toxin; 28th, ten; 29th, fifteen.

June 1st: Having obtained more of Coley's toxins, gave five minims of the unfiltered.

June 2d: Eruption much faded. Gave seven minims of the unfiltered; June 3d, five.

June 8th: Has not received any toxins since June 3d. Been feeling well, but occasionally had severe perspiration at night. Eruptions almost entirely disappeared, and glandular enlargement very slight.

June 9th: Six minims of the unfiltered.

June 10th: Only the very slightest erythema can be perceived on close inspection. Ten minims of the unfiltered given.

From the 11th to the 16th, gave ten minims of the unfiltered; 17th, twelve; 18th, fifteen; 22d, eighteen.

June 23d: No evidence of syphilis.

June 29th: Discharged, with no evidence of syphilis apparent.

Note.—This patient left the city to take a position in Long Branch, with instructions to report to me if he discovered at any time any further evidence of the disease. I have heard nothing from him since and infer that he is sufficiently well to attend to his occupation.

There were three other cases which I wish to mention briefly, though I shall give no detailed history here, for the reason that I discovered that in two of them potassium iodid unknown to me, had been administered while they were receiving treatment by means of the toxins, and the other was under observation for too short a time to determine the effect of the treatment.

Of the two who were treated with the potassium iodid in addition, one of them was an old man in feeble condition when he contracted syphilis, which was very shortly before he came under my observation. His was the only case in which there seemed to be a severe reaction after the administration of the toxins. He had a chill and considerable fever, and in his weak and enfeebled condition I did not think it justifiable to pursue a method of treatment of which we know so little as we do of this. So I put him upon inunctions and a tonic.

The other one had a papular syphilid, which disappeared with great rapidity, but he returned a few days after the last administrations of the toxins with a reappearance of two or three papules, showing that the administration of the toxins had not been efficient in prohibiting a fresh outbreak of cutaneous manifestations.

The third case came to me with persistent papular syphilid of the forehead, and an extensive excoriation of the mucous membrane at the angle of his mouth. His case had resisted ordinary antisyphilitic medication. He was under treatment for a very few days, during which time the papular eruption became very much improved. I could see no change whatever in the excoriation at the angle of the lip.

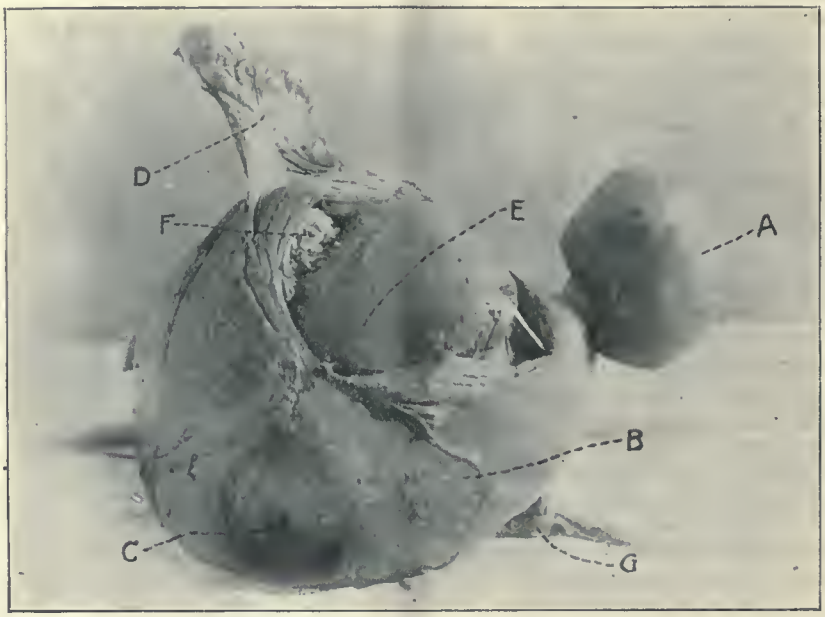
CLINICAL MEMORANDUM.

REPORT OF THREE CASES OF HYSTERECTOMY.

By I. B. PERKINS, M.D.,
of Denver, Col.;
formerly director of gynecological clinic, Denver Medical College, and gynecologist to Arapahoe County Hospital.

Case I.—*Uterine Fibroma:* Mrs. E., aged thirty-five, American born, married, was never pregnant, dressmaker; gives history of having menstruated first when fourteen years of age, and of having had good health and a normal function up to about eight years ago, when she began to have dysmenorrhea and a prolonged menstrual flow. I saw her first during the winter of 1889 and 1890, and on examination, discovered a tumor about the size of a teacup, apparently occupying the right side of the pelvis, and extending about two or three inches above the pubic arch, and lying to the right of the median line. I could not decide at that examination, which was made without an anesthetic, what the character of the tumor was, but thought it a fibroid, and advised exploratory operation, which was declined. I saw the patient no more until January, 1895, when she consulted me, saying she was ready to have the tumor removed. The tumor appeared to be as large as a pregnant uterus at full term. The patient was not in good condition, being anemic and very nervous, with very profuse hemorrhage at the menstrual period, which lasted from ten to twelve days. Obstinate constipation was present. I put her on tonic treatment and rich diet preparatory to the operation. On the 19th of February, 1895, she was admitted to St. Luke's Hospital, and on the following day I operated. The anesthetic used was chloroform; there being a trace of albumin present in the urine, it was deemed best not to use ether. After rendering the vagina and the external parts thoroughly aseptic, I dilated the os, and introduced a probe, which went up into the uterine cavity its full length, about thirteen inches. This caused a profuse hemorrhage, and, without curetting the uterine cavity (the method I prefer), I douched out the uterus with bichlorid, 1–2000, and put a piece of iodoform gauze in the cervix, crowding it up several inches. The vagina was packed with iodoform

gauze. The patient was then placed in the Trendelenburg position. The first incision was from two inches above the pubic arch nearly to the umbilicus, and putting in my hand, I explored, finding on the right side and attached to the main tumor, a tumor, smooth, except some small nodules, resting against the kidney, about twice the size of a normal kidney. I enlarged the incision to within about two inches of the ensiform cartilage, in all about fourteen inches in length, turned the tumor out, and covered the intestines with sterilized towels, and packed sterilized towels in the upper part of the wound. Beginning outside the ovary and tube, transfixing the broad ligament with the ligature, I continued to the base of the broad ligament, tying the uterine artery when I came to it. I proceeded in like manner on the left side.



MRS. E.—CASE I. POSTERIOR VIEW.

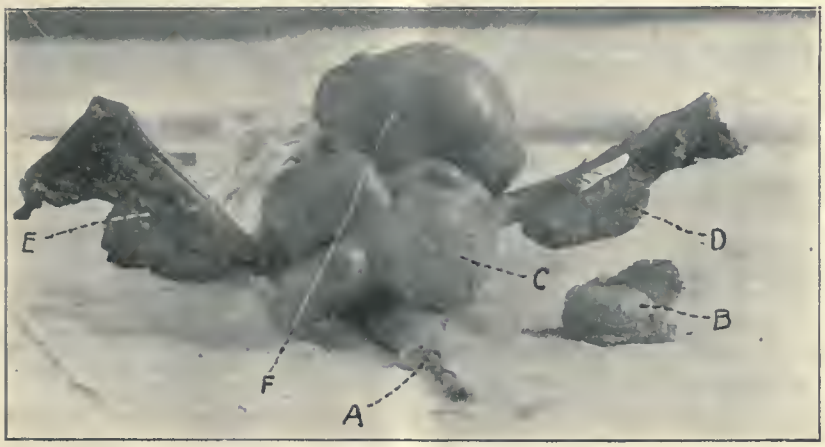
A—Subserous tumor, that was resting over right kidney. B—Shows where posterior flap was taken. C—Shows os uteri. D—Ovary and tube, flattened by pressure. E—Submucous fibroid. F—Gauze, put between wall of uterus and tumor. G—Ovary and tube.

Then with a slight stroke of the bistoury, I cut through the peritoneum, making a semicircular flap posteriorly. (B, photograph 1.) I then dissected this flap down to the cervico-vaginal juncture, then, with a sound in the bladder as a guide, manipulated by an assistant, I took my anterior flap, going about one or two inches above the junction of the bladder with the uterus, and dissected this down also. The next step was to sever the uterus from the vagina at its juncture, going into the posterior cul-de-sac first, an assistant's finger in the vagina as a guide. The uterus was separated completely, and the top of the vagina at once closed with sterilized catgut. The cavity or cup formed by the flaps of peritoneum was then sponged out until quite dry, the peritoneal flaps united by continuous lock-stitch suture of medium-sized catgut. The abdomen was then washed out with normal salt solution, sponged with sterilized sponges, and the abdominal incision closed with interrupted sutures of silkworm-gut, about one-half inch apart, transfixing with the same suture the peritoneum, muscles and skin; dressed with iodoform, iodoform gauze, sterilized gauze and cotton, and held in place by adhesive strips and a bandage. I also put the same kind of dressing over the vulva, held by a T-bandage.

During the operation, several hypodermic injections of strychnin, one-twenty-fifth of a grain, were given, and this was kept up at intervals of two hours for several days; also an occasional hypodermic of nitroglycerin, one-hundredth of a grain, was given. Nutritive enemata: First whisky and black coffee, afterward whisky and peptonized beef juice were kept up for several days. Nothing else in the way of nutrition was given until the bowels moved freely, which was on the third day. The quantity of urine passed the first twenty-four hours was twenty-seven ounces. This, with absence of other symptoms, caused me to feel that no injury had been done the ureters. The patient left the hospital at the end of the third week. Was sitting up and walking a little at the end of five weeks, and at this writing, four months after operation, appears to be in perfect health. The tumor weighed fifteen pounds after removal, and was pronounced a fibroma by Dr. Seebass, who kindly examined it for me.

CASE II.—*Uterine Fibroma:* Mrs. D., aged forty, German, married, never pregnant. Menstruated first at sixteen. Gives history of fainting spells at first three or four menstrual periods. Always flows freely, flow lasts sometimes for seven days. About a year ago she began to fail. Constipation was obstinate, and she had a peculiar affection of speech, by which she would stammer and stop in conservation. In February, 1895, I made an examination and found a tumor, reaching above the pubes,

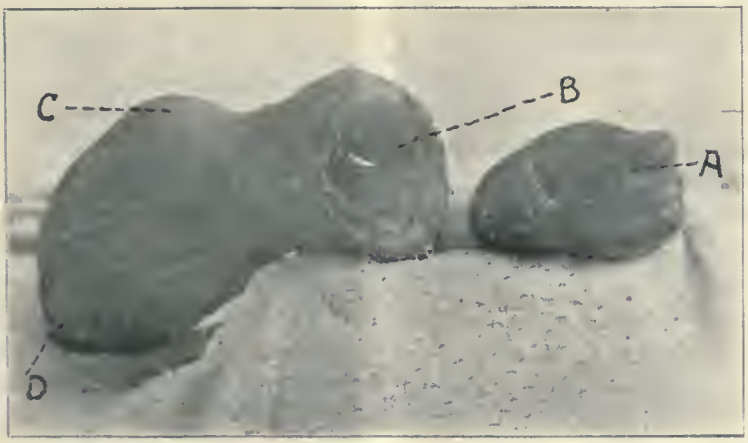
firm, and nodular in shape; nodules could be felt through the vagina, rectum, and abdomen. I advised exploratory operation. She was admitted to St. Luke's Hospital, April 5th, and operated upon April 6, 1895. I made a small incision in median line just above the pubes, and explored, finding a firm, nodular tumor, very irregular in shape, which could only be removed by complete extirpation. I enlarged the opening almost to the umbilicus, and removed the uterus and ovaries, much as described in Case No. 1, except that the peritoneum in this case was found very friable, tearing in several places, and bleeding freely as I ligated down through the broad ligaments. When I attempted to take my flaps, I found it impossible to get one on account of the peritoneum tearing so easily; so on the posterior surface I dissected off a nodule of the tumor with the flap, thinking I could dissect it out afterward. But when I got below the nodule, the peritoneum again broke through, and I was compelled to take some cervical tissue, and make this, with the top of the vagina, serve for the posterior flap. My anterior flap I began from near the bladder, taking only peritoneum enough for my continuous suture; this, with the other flap, covered over the vaginal opening. The operation was completed as in the other case, and the after-treatment was practically the same. Patient is well and able to walk at the present time. Her speech is good. The faltering noticed before operation being scarcely noticeable since the first week after the operation.



MRS. D.—CASE II. POSTERIOR VIEW.

A—Os, with gauze in it. B—Nodule, dissected off with flap. C—Place from which nodule was taken. D—Ovary, tube, and part of broad ligament. E—Ovary, tube, and part of broad ligament. F—Nodules surrounding uterus.

Case III.— *Diffuse infiltrating carcinoma of the cervix.* This case is one of vaginal hysterectomy. Mrs. L., aged fifty-three, English, mother of ten children; consulted me first nearly eight years ago for profuse hemorrhage, lasting sometimes for two weeks, coming on usually at regular monthly intervals. On examination, I found a fibrous polypus attached to the left side of the uterus, just within the internal os, by a pedicle. I removed it January 21, 1888, with complete cessation of hemorrhage. The patient was well until about six months ago,



MRS. L.—CASE III. POSTERIOR AND LEFT LATERAL VIEW.

A—Tumor taken seven years ago. B—Site of carcinoma. C—Nodule on posterior part of uterus. D—Fundus of uterus.

when she began to flow irregularly, not very profusely at first. She grew worse until about two months ago, when I was consulted. On examination, I found the uterus somewhat above the normal size and quite sensitive. The appearance of the cervix led me to suspect malignant disease, and I took a specimen for examination. Dr. Axtell made the examination for me and pronounced it diffuse infiltrating carcinoma. Patient was admitted to St. Luke's Hospital on the 8th of May, 1888, and operated on the following day. Preparation of the patient was the same as in the other two cases. With a sharp curette I removed all the diseased tissue I could, finding that it extended highest on the right side. After again douching out the vagina and the cavity which I had made in the cervix, I packed the cervix full of iodoform gauze, and closed it with a continuous silk suture, and again douched out the vagina with bichlorid, 1–1000. After this a continuous douch of normal salt solution was used during the operation. I freed the cervix from the vagina by a free incision anteriorly and posteriorly, entering the posterior cul-de-sac first; stitched the peritoneum to the mucous membrane by a continuous suture of sterilized catgut, and then tied off the broad ligaments with catgut, very much as when done from above. The most difficult part of the operation was in freeing the bladder from the uterus, as it was spread out and adherent over a larger space than is usual. The stumps of the broad ligaments were brought down and stitched into the vaginal opening above, thereby closing the peritoneal cavity. In doing this, the left ovary and tube came down in the way and were removed. The vagina was packed with iodoform gauze, and a dressing of iodoform gauze, iodoform and sterilized gauze, and cotton, were put over the vulva and held by the T-bandage. I removed the vaginal tampon on the fourth day, and used a bichlorid wash, 1–4000. The case ran an even course and made a good record, leaving the hospital on the twentieth day.

MEDICAL PROGRESS.

Sterilization of Catgut.—Details of the sterilization of catgut in boiling water after hardening in a solution of formalin have already been widely published. The results have not been in every instance satisfactory, and the matter receives exhaustive treatment at the hands of HOFMEISTER in the last number of the *Beiträge z. klin. Chirurgie* (vol. xvi, p. 775).

Complaints have been made that catgut so prepared kinks up in boiling, or that it loses its strength. Omitting instances in which it has been boiled in soda solution with instruments, instead of in clear water, the failures are mostly due to the fact that the catgut has not been tightly stretched on something during the boiling, or to an imperfect washing out of the formalin. The latter process requires a long time, and the odor of formalin is plainly noticeable in catgut, which is wound in several layers on a spool, even after it has been washed several hours in running water.

Hofmeister's perfected method is as follows: (1) The catgut is wound on a glass plate with slightly projecting edges, so that the gut is free from the sides of the plate and exposed to the circulation of the fluids. The ends of the gut are fastened through holes in the plate. (2) Immersion twelve to forty-eight hours in aqueous formalin two to four per cent. (3) Immersion in flowing water at least twelve hours to free the gut from the formalin. (4) Boiling in water ten to thirty minutes. Ten minutes is amply sufficient. Boiling for an hour weakens the gut somewhat. (5) Hardening and preservation in absolute alcohol containing five per cent. of glycerin and one-tenth per cent. of corrosive sublimate. After the catgut has been washed free from formalin it can be kept in alcohol and sterilized as required. It loses none of its strength—at least not in a month's time.

Experiments on animals have proved that formalin catgut is entirely absorbable, though not as quickly as the ordinary material.

THERAPEUTIC NOTES.

The Employment of Eucain in Ophthalmic Practice.—VOLLERT (*Münchener medicinische Wochenschrift*, 1896, No. 22, p. 516) reports the results of a clinical study of eucain $C_{19}H_{27}NO_4HCl$, the name given a new local anesthetic and said to possess advantages over cocain. The base itself, like cocain, is soluble in water with difficulty; while the hydrochlorate is readily soluble, crystallizing out of water in shining plates, and out of methyl-alcohol in bright prisms. The anesthetic effect is not destroyed by boiling. The salt is only partially soluble in 1–5000 sublimate solution at ordinary temperature. The precipitate is dissolved by heat to be deposited again on cooling. A five per cent. solution was employed. The conjunctival irritation, following the instillation of eucain, was more pronounced and more protracted than that due to cocain, and was renewed with each instillation. The anesthetic effect was manifested within two or three minutes, and lasted from eight to twelve minutes. Ocular tension was diminished and mydriasis and cycloparesis resulted, though perhaps not in the same degree as after the use of cocain. The injurious effects upon the epithelium of the conjunctiva and cornea were more pronounced after the use of eucain than after that of cocain.

The Best Chemical Treatment of Lupus.—DUBREUITH & BERNARK (*Monatsch. f. Prac. Dermatol.*, vol. xxii, part 3) strongly advocate early and complete excision of lupus, but for those cases where such treatment is impossible they recommend Unna's salicylic creosote plaster mull. The plaster is spread over the whole affected surface, and bandaged tightly in position. The bandage is changed daily. The lupus is destroyed while the sound skin is relatively unaffected. The resulting ulcer fills with granulation, and any yellow islets of lupus are touched with caustic. The temporary results are satisfactory, but recurrence is to be looked for. In lupus sclerosus this salicylic creosote plaster is not advised, as the scar tissue, as well as the active lupus, it destroys.

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SATURDAY, OCTOBER 10, 1896.

SIR JOSEPH LISTER'S ADDRESS.

We publish in The News of this week a very complete abstract of the presidential address of Sir Joseph Lister, before the British Association for the Advancement of Science, at its annual meeting in Liverpool, September 16th. No man of our time has been such an epoch maker, in the history of surgery, as Lister. It must have been a rare privilege to hear from the lips of this great but modest member of our profession his simple, dignified narrative of the logical steps by which he reached the final conclusion of his great theory of aseptic surgery. This is the first time that he has made known the history of his investigations, and this authoritative utterance is fraught with absorbing interest to the entire medical and surgical world. Although, in practice, we seem to have departed far from what he regarded as essential features in the system, the underlying principle of infection upon which the system was founded, is more firmly established than ever.

"Antiseptic surgery" and "antisepsis" are rapidly becoming obsolete terms, and even "asepsis" is gradually being superseded by the simple expression—surgical cleanliness. Lister believed in atmospheric infection, but we now know that practically air infection amounts to nothing, and that contact infection embraces it all. It matters little what the external surroundings may be, provided the field of operation is clean and every article that comes in contact with the wound is free from contaminating material.

Lister develops the whole subject in a masterful, entertaining, and instructive manner, and we feel confident that our readers will deem themselves fortunate in finding his address in the columns of the News.

THE CIRRHOTIC DISEASES OF THE LIVER AND DIABETES.

Ever since Bernard's discoveries of the glycogenic function of the liver and the relation between irritation of the nucleus of the pneumogastric nerve and glycosuria, the attention of pathologists has been turned to the liver as a probable source of diabetes. Notwithstanding this fact careful histological studies of the liver in cases of diabetes are by no means numerous. In a very suggestive article by Dr. Pusinelli of Dresden (*Berlin. klin. Wochenschrift*, August 17, 1896), the relation between diabetes mellitus and cirrhosis of the liver is discussed, and the literature of the subject extensively quoted, while, in addition, he enriches it by the report of a case of unusual interest.

The fact that morbid changes in the liver are found in the majority of cases of diabetes is well established. For example, Glénard found them in sixty per cent. of 324 cases, and Ewald concedes their existence as a rule. The latter, however, states that in numerous cases of hepatic cirrhosis, he has neither observed glycosuria nor been able to produce it artificially by administering large quantities of grape sugar. This question then is not whether hepatic changes are present, as a rule, in cases of diabetes, but whether such changes are primary or secondary, *post hoc* or *propter hoc*. A single, carefully studied case, which throws light on this pathological problem, is a welcome contribution, and such a case is furnished by Pusinelli.

The patient was a man, forty-eight years of age, who, in 1887, first manifested signs of hepatic dis-

ease: transient icterus, with enlargement of the liver. A year later, diabetes, previously absent, was detected. This was readily amenable to treatment but, on the whole, may be said to have existed until 1893 when ascites set in.

Without entering into further details the writer would call attention to what is undoubtedly the most important clinical fact in connection with this case, viz: the diminution of the glycosuria in direct ratio with the development of the ascites, and its final disappearance when the abdomen was distended to its utmost. On the other hand, when the intra-abdominal pressure was relaxed by paracentesis the sugar reappeared. Facts, such as these, to which F. A. Hoffmann, in his "Lehrbuch der Constitutionskrankheiten," has already called attention, show the importance of repeated examinations of the urine in cases of hepatic cirrhosis.

The lesion in Pusinelli's case would have been difficult to determine from the symptoms alone. In the chronic enlargement of the liver and spleen and the icterus, it corresponded with the hypertrophic cirrhosis of Hanot and Charcot, but was differentiated by its eventually giving rise to marked ascites. Pusinelli was inclined to classify it under that subvariety of cirrhosis described by Senator as portal cirrhosis with hypertrophy, and the correctness of this view was confirmed by autopsy.

Every clinician is aware that it is impossible to classify every variety of cirrhosis under the two heads of atrophic and hypertrophic. In the opinion of the writer the best division of the cirrhotic diseases of the liver is that proposed by Senator: (1) Portal granular atrophy of the liver (atrophic cirrhosis), (*a*) portal cirrhosis with hypertrophy, (*b*) portal cirrhosis with icterus; (2) biliary cirrhosis with subsequent atrophy, (*a*) biliary cirrhosis with enlargement of spleen; (3) Hanot's hypertrophic cirrhosis with icterus.

There remains another variety of cirrhosis to which attention was first called by Hanot and Chauffard in 1881—the so-called pigmentary cirrhosis which, when combined with diabetes and melanoderma, constitutes a distinct clinical species now universally recognized under the title of *diabète bronzé*. It presents the usual features of cirrhosis, the connective tissue being most abundant around the intralobular veins, with, in addition, marked pigmentation of the cells of the hepatic parenchyma, the interstitial connective tissue and the derma.

From the foregoing it appears evident that the diagnosis of a case of hepatic cirrhosis, as atrophic or hypertrophic, should not be regarded as final, and also that a fruitful field, both of clinical and pathological research, is afforded in the obscure relation between diabetes and morbid changes in the liver.

THE NEW YORK CHARITIES COMMISSIONERS AGAIN.

FROM week to week we have chronicled in the columns of the MEDICAL NEWS the progress of the Commissioners of Charities of New York City in endeavoring to help along the cause of quackery and to place it on a firm foundation in the public hospitals under their jurisdiction. In our issues of June 27th and July 12th, particularly, we showed how a stock company, organized for the sale of a secret remedy for drunkenness, had, through its organizer, chief stockholder, and prime mover, succeeded in hoodwinking the Commissioners to such an extent that they granted to him privileges for experimentation on the helpless poor, that had never before been dreamed of by the most aggressive and aspiring charlatan. Unfortunately, for the sake of their reputations, the Commissioners were not wise in the selection of a concoction for their "trial heat" in experimental quackery, for the monster which they tried to rear up on the pabulum of their official patronage languished, by reason of the exposure in the NEWS, and died of exhaustion nearly one month before the following resolution was put on file:

NEW YORK, September 11, 1896.

RESOLVED, That the resolution of this Board dated May 19, 1896, and subsequent resolutions providing facilities for and setting aside Ward 33 at Bellevue Hospital to be used in the treatment of alcoholism by Dr. I. Oppenheimer, are hereby rescinded. Further action in this matter is suspended, awaiting the receipt of a report on the results of Dr. Oppenheimer's treatment, such report now being in preparation by Commissioner O'Beirne. (Signed) S. C. CROFT,
JOHN P. FAURE,
JAS. R. O'BEIRNE.

The promoter of the scheme, however, had realized his ambition—plenty of free advertising—and his lack of interest in it during its dying days in the hospital was in marked contrast to the ludicrous efforts of the Commissioners to bolster it up sufficiently to get a "last word" from it, which they might hold up to their critics. But, as we warned them at the very outset, they had given the influence and weight of their official position to one of the rankest exuberations of quackery which we have recently seen. They, however, would not be advised, and preferred to flounder around in the nest which they had befouled.

The conclusion of the above resolution is in entire keeping with the straightforwardness (?) of the Commissioners in this matter heretofore. Transformed into frank Anglo-Saxon, however, it means: "Our attempts to mind the business of others have been colossal failures. We dislike to admit it, however, and are not yet ready to do so. In the meantime, we shall hide our heads, ostrich-like, under the wing of Commissioner O'Beirne, he having been largely instrumental in manipulating the practical workings of our little scheme to reform mankind, and at the same time fill the coffers of a certain doctor, who has forgotten his Hippocratic oath."

We, however, have the body of the ostrich in full sight, where a fitting castigation can be administered, but meantime we shall await "the report," which will probably never see the light.

ECHOES AND NEWS.

Tuberculous Cows.—Nearly fifty per cent. of San Francisco dairy cows will have to be slaughtered to stamp out tuberculosis, which is making great havoc among them.

A Tri-State Medical Society Meeting.—The next meeting of the Tri-State Medical Society of Alabama, Georgia, and Tennessee, will be held in Chattanooga, October 13th, 14th, and 15th.

A New College Building Opened.—The new medical college building of Syracuse University was formally opened October 5th. Dr. Stephen Smith of New York, delivered the address.

An Ether Drunkard.—A shoe-laster, who is a medical graduate, is reported by a Cincinnati paper to be in the habit of using about a quart of sulphuric ether a day, sometimes drinking it and at other times inhaling it.

Depilated by the X-ray.—A Wisconsin man was recently examined at the physical laboratory of the Minnesota State University to have the location of a bullet in his skull determined by the X-ray. On the right side of the head, which had been most exposed to the rays, the hair has all fallen out.

Hydrostatic Abdominal Exploration.—M. Marc Sée, in a communication to the Académie de Médecine, recommends submergence in water for abdominal exploration. The abdominal walls, loaded with fatty matter, tend to come to the surface of the water, thus rendering easy the delimitation of the organs beneath by palpation.

A Threadworm in the Appendix.—Dr. H. T. Williams, of Rochester (N. Y.), in the *Buffalo Medical Journal*, reports a case of appendicitis in which he had operated. In the extreme end of the appendix, surrounded with pus and liquid feces, was found a living female threadworm (*Oxyuris vermicularis*), about three-eighths of an inch in length.

Tuberculosis in the French Army.—As the result of an investigation into the prevalence of tuberculosis in the French army, GRANJUX (*Revue de la Tuberculose*, 1896, No. 2, p. 87) has found that seven men out of every thousand are affected—a proportion higher than prevails in civil life among individuals of corresponding age. The number is about the same in all European armies, but is increasing from year to year. The increase goes hand in hand with the proportion of young recruits and the necessity for training them in the shortest time possible. Tuberculosis in the army is maintained by the entrance into the ranks of those predisposed to the disease and by contagion. To reduce the danger from contagion to the minimum, it is necessary to cleanse and disinfect the barracks periodically, provide cuspidors, control the food-supply, prevent the abuse of alcohol, and avoid physical excesses.

Medical (!) Items in the Lay Press.—Under the above caption, the *Lancet* says: "If we were to reproduce all the curious medical information supplied by the lay press, there would be little room left in our pages for anything else; but the following gem, being short, as well as brilliant, we are tempted to make an exception in its favor: 'A Delicate Surgical Operation.—An eminent German oculist, Professor Deutschman, according to a medical paper, has succeeded in curing blindness by injecting the liquid of a rabbit's eye into the vitreous humor of the human eye. This is considered the most delicate surgical operation ever performed.' The following paragraph has a more serious import. The journal from which it was taken has an enormous circulation, and the distorted remarks ascribed to Professor Ray Lankester may do a vast amount of harm: 'Filtered Water is a Mistake! We live and learn! Professor Ray Lankester made some remarks recently about drinking-water at the Royal Institute. He told his hearers that if they wanted to dodge cholera and typhoid, and such like unpleasant things, they had better imbibe good rich Thames water, neither boiled nor filtered. River-water of that kind, he said, is safer to drink, for the very reason that it is teeming

with microbes of various species, which prey upon each other, and so give the human organism a chance, whereas in pure spring- or lake-water the typhoid germ, for example, flourishes unmolested by the harmless bacteria, whose function is that of killing disease-germs, so that typhoid has a clear field.' " Ridiculous enough, it is true, but hardly to be compared with the excerpts that might be made from the Sunday editions of a few of the New York papers.

The Jubilee of Anesthesia.—The commemoration of the fiftieth anniversary of the first public demonstration of surgical anesthesia will be held at the Massachusetts General Hospital, Boston, October 16, 1896. The guests will be received in the old amphitheater of the hospital, which will be restored, as far as possible, to its condition at the time of the first operation under ether by Dr. John C. Warren. The following is a program of the public exercises, which will be held in the new amphitheater: Address of welcome, by Charles H. Dalton, president of the hospital; "Reminiscences of 1846," by Dr. R. T. Davis of Fall River, and Dr. Washington Ayer of San Francisco; "Surgery before Anesthesia," by Dr. John Ashhurst, Jr., of Philadelphia; "What Anesthesia has Done for Surgery," by Dr. David W. Cheever of Boston; "Relation of Anesthesia and Obstetrics," by Dr. John P. Reynolds of Boston; "The Influence of Anesthesia upon Medical Science," by Dr. W. H. Welch of Baltimore; "The Surgery of the Future," by Dr. Charles McBurney of New York; "The Birth and Death of Pain" (a poem), by Dr. S. Weir Mitchell of Philadelphia.

British Association Gleanings.—The British Association, which, at its annual meetings, formerly afforded a platform for the first announcement of important scientific discoveries, now rather summarizes the progress of human knowledge during the year. The following are culled from the subjects presented to the Association: Professor Ramsay described the division of helium into two portions, one of which is lighter than the other, though both give the same spectrum. Dr. Dawson Turner of Edinburgh reported the results of some experiments to obtain a form of radiation from glow-worms. He confined them in vessels over sensitive photographic plates, carefully protected from ordinary light by being wrapped tightly in paper. He had great difficulty in getting the insects to glow. The photographic plate was affected, and he thought the glow-worms, even when not visibly glowing, were able to give off rays similar to the X-ray, and capable of penetrating black paper. Dr. McKendrick of Glasgow, in a paper on the phonograph, showed that the hands, when placed in troughs containing salt water, through which an electrical current from the phonograph was passing, received a rhythmical stimulation. He thought that by a proper development of these vibrations deaf persons would thus be enabled to enjoy at least the rhythm of music. Dr. W. Marat showed that respiration in cycling was easier than in walking. Professor Lorrain Smith read a paper written jointly by himself and Professor F. F. Westbrook, on fever in mice. In infected mice there was never obtained any increase in the excretion of nitrogen sufficient to warrant the inference that the metabolism had been disturbed. Supplied with dry biscuit as food, the amount of nitrogen consumed per kilogram was about twenty times as great as that of man. Dr. J. L. Bunch read a paper on the nerves of the intestines, and the effects of small doses of nicotin upon them, in which he showed that if means were taken to eliminate its action on the heart, stimulation of the peripheral cut end of the vagus was found not to influence the intestinal movements, and that intravenous injections of small doses of nicotin put the nerve-roots out of action before the splanchnics. Dr. Pavy, in a paper on the glucosid constitution of the proteid, referred to his "Physiology of the Carbohydrates," in which he had adduced evidence to show that proteid matter, whether animal or vegetable, was a glucosid. By the agency of potash, the amylose carbohydrate, corresponding with Lanchvaro's animal gum, was obtained from a number of animal and vegetable proteids. Treating this with sulphuric acid, sugar was obtained.

SPECIAL ARTICLE.

SIR JOSEPH LISTER'S PRESIDENTIAL ADDRESS BEFORE THE BRITISH ASSOCIATION.[1]

THE presidential address, always noteworthy, of the British Association for the Advancement of Science, has a special interest for the medical profession this year, as it was delivered by Sir Joseph Lister, who spoke upon the interdependence of science and the healing art.

THE RÖNTGEN RAYS.

"The surgeon never performs an operation without the aid of anatomy and physiology; and in what is often the most difficult part of his duty, the selection of the right course to follow, he, like the physician, is guided by pathology, the science of the nature of disease, which, though very difficult from the complexity of its subject-matter, has made during the last half-century, astonishing progress, so that the practice of medicine, in every department, is becoming more and more based on science as distinguished from empiricism. I propose, on the present occasion, to bring before you some illustrations of the interdependence of science and the healing art; and the first that I will take is perhaps the most astonishing of all results of purely physical inquiry—the discovery of the Röntgen rays, so-called after the man who first clearly revealed them to the world. Mysterious as they still are, there is one of their properties which we can all appreciate—their power of passing through substances opaque to ordinary light. There seems to be no relation whatever between transparency in the common sense of the term and penetrability to these emanations. The glasses of a pair of spectacles may arrest them, while a wooden and leathern case allows them to pass almost unchecked; yet they produce, whether directly or indirectly, the same effects as light upon a photographic plate. As a general rule, the denser any object is, the greater obstacle does it

[1] Delivered before the British Association for the Advancement of Science, Liverpool, September 16, 1896.

oppose to the rays. Hence as bone is denser than flesh, if the hand or other part of the body is placed above the sensitive film enclosed in a case of wood or other light material at a suitable distance from the source of the rays, while they pass with the utmost facility through the uncovered parts of the lid of the box and powerfully affect the plate beneath, they are arrested to a large extent by the bones, so that the plate is little acted upon in the parts opposite to them, while the portions corresponding to the muscles and other soft parts are influenced in an intermediate degree. Thus, a picture is obtained in which the bones stand out in sharp relief among the flesh, and anything abnormal in their shape or position is clearly displayed.

"I need hardly point out what important aid this must give to the surgeon. As an instance, I may mention a case which occurred in the practice of Mr. Howard Marsh. He was called to see a severe injury of the elbow, in which the swelling was so great as to make it impossible for him, by ordinary means of examination, to decide whether he had to deal with a fracture or dislocation. If it were the latter, a cure would be effected by the exercise of violence, which would be not only useless, but most injurious, if a bone was broken. By the aid of the Röntgen rays a photograph was taken, in which the bone of the upper arm was clearly seen displaced forward on those of the forearm. The diagnosis being thus established, Mr. Marsh proceeded to reduce the dislocation; and his success was proved by another photograph, which showed the bones in their natural relative position.

"The common metals, such as lead, iron, and copper, being still denser than the osseous structures, these rays can show a bullet imbedded in a bone or a needle lodged about a joint. At the last conversazione of the Royal Society, a picture produced by the new photography displayed with perfect distinctness through the bony framework of the chest a halfpenny low down in a boy's gullet. It had been there for six months, causing uneasiness at the pit of the stomach during swallowing; but whether the coin really remained impacted, or, if so, what was its position, was entirely uncertain till the Röntgen rays revealed it. Dr. Macintyre of Glasgow, who was the photographer, informs me that when the presence of the halfpenny had been thus demonstrated, the surgeon in charge of the case made an attempt to extract it, and although this was not successful in its immediate object, it had the effect of dislodging the coin, for a subsequent photograph by Dr. Macintyre not only showed that it had disappeared from the gullet, but also, thanks to the wonderful penetrating power which the rays had acquired in his hands, proved that it had not lodged further down in the alimentary passage. The boy has since completely recovered.

"The Röntgen rays cause certain chemical compounds to fluoresce and emit a faint light, plainly visible in the dark; and if they are made to fall upon a translucent screen impregnated with such a salt, it becomes beautifully illuminated. If a part of the human body is interposed between the screen and the source of the rays, the bones and other structures are thrown in shadow upon it, and thus a diagnosis can be made without the delay involved in taking a photograph. It was, in fact, in this way, that Dr. Macintyre first detected the coin in the boy's gullet. Mr. Herbert Jackson of King's College, London, early distinguished himself in this branch of the subject. There is no reason to suppose that the limits of the capabilities of the rays in this way have yet been reached. By virtue of the greater density of the heart than the adjacent lungs, with their contained air, the form and dimensions of that organ in the living body may be displayed on the fluorescent screen, and even its movements have been lately seen by several different observers.

"Such important applications of the new rays to medical practice have strongly attracted the interest of the public to them, and I venture to think that they have even served to stimulate the investigations of physicists. The eminent Professor of Physics in the University College of this city (Professor Lodge) was one of the first to make such practical applications, and I was able to show to the Royal Society at a very early period a photograph, which he had the kindness to send me, of a bullet imbedded in the hand. His interest in the medical aspect of the subject remains unabated, and at the same time he has been one of the most distinguished investigators of its purely physical side.

"There is another way in which the Röntgen rays connect themselves with physiology, and may possibly influence medicine. It is found that if the skin is long exposed to their action, it becomes very much irritated—affected with a sort of aggravated sunburning. This suggests the idea that the transmission of the rays through the human body may be not altogether a matter of indifference to internal organs, but may, by long-continued action, produce, according to the condition of the part concerned, injurious irritation of salutary stimulation.

ANESTHESIA IN SURGERY.

"This is the jubilee of anesthesia in surgery. That priceless blessing to mankind came from America. It had, indeed, been foreshadowed in the first year of this century by Humphry Davy, who, having found a toothache from which he was suffering relieved as he inhaled laughing gas (nitrous oxid), threw out the suggestion that it might perhaps be used for preventing pain in surgical operations. But it was not till, on September 30, 1846, Dr. W. T. G. Morton of Boston, after a series of experiments upon himself and the lower animals, extracted a tooth painlessly from a patient whom he had caused to inhale the vapor of sulphuric ether, that the idea was fully realized. He soon afterward publicly exhibited his method at the Massachusetts General Hospital, and after that event the great discovery spread rapidly over the civilized world. I witnessed the first operation in England under ether. It was performed by Robert Liston in University College Hospital, and it was a complete success. Soon afterward I saw the same great surgeon amputate the thigh as painlessly, with less complicated anesthetic apparatus, by aid of another agent, chloroform, which was being powerfully advocated as a substitute for ether by Dr. (afterward Sir James Y.) Simpson, who also had the great merit of showing that confinements could be conducted painlessly, yet safely, under its influence. These

two agents still hold the field as general anesthetics for protracted operations, although the gas originally suggested by Davy, in consequence of its rapid action, and other advantages, has taken their place in short operations, such as tooth-extraction. In the birthplace of anesthesia ether has always maintained its ground; but in Europe it was, to a large extent, displaced by chloroform till recently, when many have returned to ether, under the idea that, though less convenient, it is safer. For my own part, I believe that chloroform, if carefully administered on right principles, is, on the average, the safer agent of the two. The discovery of anesthesia inaugurated a new era in surgery. Not only was the pain of operations abolished, but the serious, and sometimes mortal, shock which they occasioned to the system was averted, while the patient was saved the terrible ordeal of preparing to endure them. At the same time the field of surgery became widely extended, since many procedures in themselves desirable, but, before, impossible from the protracted agony they would occasion, became matters of routine practice. Nor have I by any means exhausted the list of the benefits conferred by this discovery. Anesthesia in surgery has been, from the first to last, a gift of science. Nitrous oxid, sulphuric ether, and chloroform are all artificial products of chemistry; their employment as anesthetics was the result of scientific investigation, and their administration, far from being, like the giving of a dose of medicine, a matter of rule of thumb, imperatively demands the vigilant exercise of physiological and pathological knowledge. While rendering such signal service to surgery, anesthetics have thrown light upon biology generally. It has been found that they exert their soporific influence not only upon vertebrata, but upon animals so remote in structure from man as bees and other insects. Even the functions of vegetables are suspended by their agency. They thus afford strong confirmation of the great generalization that living matter is of the same essential nature wherever it is met with on this planet, whether in the animal or vegetable kingdom. Anesthetics have also, in ways to which I need not here refer, powerfully promoted the progress of physiology and pathology."

He then described the researches on fermentation, whereby Pasteur demonstrated that the breaking up of the sugar into alcohol and carbonic acid was due to the growth of a microörganism, and the experiments of the same investigator to prove the fallacy of spontaneous generation.

THE INTRODUCTION OF ANTISEPSIS.

"Pasteur pointed out the enormous importance of these humble organisms in the economy of nature. It is by their agency that the dead bodies of plants and animals are resolved into simpler compounds fitted for assimilation by new living forms. Without their aid the world would be, as Pasteur expresses it, *encombré de cadavres*. They are essential, not only to our well-being, but to our very existence. Similar microbes must have discharged the same necessary function of removing refuse and providing food for successive generations of plants and animals during the past periods of the world's history; and it is interesting to think that organisms as simple as can well be conceived to have existed when life first appeared upon our globe have, in all probability, propagated the same lowly, but most useful offspring during the ages of geological time.

"Pasteur's labors on fermentation have had a very important influence upon surgery. I have been often asked to speak on my share in this matter before a public audience, but I have hitherto refused to do so, partly because the details are so entirely technical, but chiefly because I have felt an invincible repugnance to what might seem to savor of self-advertisement. The latter objection now no longer exists, since advancing years have indicated that it is right for me to leave to younger men the practice of my dearly loved profession. And it will perhaps be expected that, if I can make myself intelligible, I should say something upon the subject on the present occasion.

"Nothing was formerly more striking in surgical experience than the difference in the behavior of injuries according to whether the skin was implicated or not. Thus, if the bones of the leg were broken and the skin remained intact, the surgeon applied the necessary apparatus without any other anxiety than that of maintaining a good position of the fragments, although the internal injury to the bones and soft parts might be very severe. If, on the other hand, a wound of the skin was present, communicating with the broken bones, although the damage might be in other respects comparatively slight, the compound fracture, as it was termed, was one of the most dangerous accidents that could happen. Mr. Syme, who was, I believe, the safest surgeon of his time, once told me that he was inclined to think that it would be, on the whole, better if all compound fractures of the leg were subjected to amputation, without any attempt to save the limb. What was the cause of this astonishing difference? It was clearly, in some way, due to the exposure of the injured parts to the external world. One obvious effect of such exposure was indicated by the odor of the discharge, which showed that the blood in the wound had undergone putrefactive change, by which the bland nutrient liquid had been converted into highly irritating and poisonous substances. I have seen a man with compound fracture of the leg die within two days of the accident, as plainly poisoned by the products of putrefaction as if he had taken a fatal dose of some potent toxic drug.

"An external wound of the soft parts might be healed in one of two ways. If its surfaces were clean-cut and could be brought into accurate apposition, it might unite rapidly and painlessly 'by the first intention.' This, however, was exceptional. Too often the surgeon's efforts to obtain primary union were frustrated; the wound inflamed and the retentive stitches had to be removed, allowing it to gape, and then, as if it had been left open from the first, healing had to be effected in the other way, which it is necessary for me briefly to describe. An exposed raw surface became covered in the first instance with a layer of clotted blood or certain of its constituents, which invariably putrefied; and the irritation of the sensitive tissues by the putrid products appeared to me to account sufficiently for the inflammation which always occurred in and

around an open wound during the three or four days which elapsed before what were termed 'granulations' had been produced. These constituted a coarsely granular coating of very imperfect or embryonic structure, destitute of sensory nerves and prone to throw off matter or pus, rather than absorb, as freshly divided tissues do, the products of putrefaction. The granulations thus formed a beautiful living plaster, which protected the sensitive parts beneath from irritation and the system generally from poisoning and consequent febrile disturbance. The granulations had other useful properties, of which I may mention their tendency to shrink as they grew, thus gradu-reducing the dimensions of the sore. Meanwhile, another cause of its diminution was in operation. The cells of the epidermis, or scarfskin of the cutaneous margins, were perpetually producing a small crop of young cells of similar nature, which gradually spread over the granulations till they covered them entirely, and a complete cicatrix or scar was the result. Such was the other mode of healing that, by granulation and cicatrization, a process which, when it proceeded unchecked to its completion, commanded our profound admiration. It was, however, essentially tedious, compared with primary union, while, as we have seen, it was always preceded by more or less inflammation and fever, sometimes very serious in their effects. It was also liable to unforseen interruptions; the sore might become larger, instead of smaller, cicatrization giving place to ulceration in one of its various forms, or even to the frightful destruction of tissue which, from the circumstance that it was most frequently met with in hospitals, was termed hospital gangrene. Other serious, and often fatal, complications might arise, which the surgeon could only regard as untoward accidents, and over which he had no efficient control.

"It will be readily understood from the above description that the inflammation which so often frustrated the surgeon's endeavors after primary union was, in my opinion, essentially due to decomposition of blood within the wound.

"These and many other considerations had long impressed me with the greatness of the evil of putrefaction in surgery. I had done my best to mitigate it by scrupulous ordinary cleanliness and the use of various deodorant lotions. But to prevent it altogether appeared hopeless, while we believed with Liebig that its primary cause was the atmospheric oxygen which, in accordance with the researches of Graham, could not fail to be perpetually diffused through the porous dressings which were used to absorb the blood discharged from the wound. But when Pasteur had shown that putrefaction was a fermentation caused by the growth of microbes, and that these could not arise *de novo* in the decomposable substance, the problem assumed a more hopeful aspect. If the wound could be treated with some substance which, without doing too serious mischief to the human tissues, would kill the microbes already contained in it, and prevent the future access of others in the living state, putrefaction might be prevented, however freely the air with its oxygen might enter. I had heard of carbolic acid as having a remarkable deodorizing effect upon sewage, and having obtained from my colleague, Dr. Anderson, Professor of Chemistry in the University of Glasgow, a sample which he had of this product, then little more than a chemical curiosity in Scotland, I determined to try it in compound fractures. Applying it undiluted to the wound, with an arrangement for its occasional renewal, I had the joy of seeing these formidable injuries follow the same safe and tranquil course as simple fractures, in which the skin remains unbroken.

"At the same time we had the intense interest of observing in open wounds what had previously been hidden from human view—the manner in which subcutaneous injuries are repaired. Of special interest was the process by which portions of tissue killed by the violence of the accident were disposed of, as contrasted with what had till then been invariably witnessed. Dead parts had been always seen to be gradually separated from the living by an inflammatory process and thrown off as sloughs. But when protected by the antiseptic dressing from becoming putrid, and therefore irritating, a structure deprived of its life, caused no disturbance in its vicinity; and on the contrary, being of a nutritious nature, it served as pabulum for the growing elements of the neighboring living structures, and these became in due time entirely substituted for it. Even dead bone was seen to be thus replaced by living osseous tissue. This suggested the idea of using threads of dead animal tissue for tying blood vessels; and this was realized by means of catgut, which is made from the intestine of the sheep. If deprived of living microbes, and otherwise properly prepared, catgut answers its purpose completely; the knot holding securely, while the ligature around the vessel becomes gradually absorbed and replaced by a ring of living tissue. The threads, instead of being left long, as before, could now be cut short, and the tedious process of separation of the ligature, with its attendant serious danger of bleeding, was avoided.

"Undiluted carbolic acid is a powerful caustic; and although it might be employed in compound fracture, where some loss of tissue was of little moment in comparison with the tremendous danger to be averted, it was altogether unsuitable for wounds made by the surgeon. It soon appeared, however, that the acid would answer the purpose aimed at, though used in diluted forms devoid of caustic action, and, therefore, applicable to operative surgery. According to our then existing knowledge, two essential points had to be aimed at: to conduct the operation so that on its completion the wound should contain no living microbes; and to apply a dressing capable of preventing the access of other living organisms till the time should have arrived for changing it. Carbolic acid lent itself well to both these objects. Our experience with this agent brought out what was, I believe, a new principle in pharmacology—namely, that the energy of action of any substance upon the human tissues depends not only upon the proportion in which it is contained in the material used as a vehicle for its administration, but also upon the degree of tenacity with which it is held by its solvent. Water dissolves carbolic acid sparingly and holds it extremely lightly, leaving it free to act energetically on other things for which it has greater affinity, while

various organic substances absorb it greedily and hold it tenaciously. Hence its watery solution seemed admirably suited for a detergent lotion to be used during the operation, for destroying any microbes that might fall upon the wound, and for purifying the surrounding skin, and also the surgeon's hands and instruments. For the last-named purpose it had the further advantage that it did not act on steel.

"For an external dressing the watery solution was not adapted, as it soon lost the acid it contained, and was irritating while it lasted. For this purpose some organic substances were found to answer well. Large proportions of the acid could be blended with them in so bland a form as to be unirritating; and such mixtures, while perpetually giving off enough of the volatile salt to prevent organic development in the discharges that flowed past them, served as a reliable store of the antiseptic for days together.

"The appliances which I first used for carrying out the antiseptic principle were both rude and needlessly complicated. The years that have since passed have witnessed great improvements in both respects. Of the various materials which have been employed by myself and others, and their modes of application, I need say nothing except to express my belief, as a matter of long experience, that carbolic acid, by virtue of its powerful affinity for the epidermis and oily matters associated with it, and also its great penetrating power, is still the best agent at our disposal for purifying the skin around the wound. But I must say a few words regarding a most important simplification of our procedure. Pasteur, as we have seen, had shown that the air of every inhabited room teems with microbes; and for a long time I employed various more or less elaborate precautions against the living atmospheric dust, not doubting that, as all wounds except the few which healed completely by the first intention underwent putrefactive fermentation, the blood must be a peculiarly favorable soil for the growth of putrefactive microbes. But I afterward learned that such was by no means the case. I had performed many experiments in confirmation of Pasteur's germ-theory, not indeed in order to satisfy myself of its truth, but in the hope of convincing others. I had observed that uncontaminated milk, which would remain unaltered for an indefinite time if protected from dust, was made to teem with microbes of different kinds by a very brief exposure to the atmosphere, and that the same effect was produced by the addition of a drop of ordinary water. But when I came to experiment with blood drawn with antiseptic precautions into sterilized vessels, I saw, to my surprise, that it might remain free from microbes, in spite of similar access of air or treatment with water. I even found that if very putrid blood was largely diluted with sterilized water, so as to diffuse its microbes widely and wash them of their acrid products, a drop of such dilution added to pure blood might leave it unchanged for days at the temperature of the body, although a trace of the septic liquid undiluted caused intense putrefaction within twenty-four hours. Hence I was led to conclude that it was the grosser forms of septic mischief, rather than microbes in the attenuated condition in which they existed in the atmosphere, that we had to dread in surgical practice. And at the London Medical Congress, in 1881, I hinted, when describing the experiments I have alluded to, that it might turn out possible to disregard altogether the atmospheric dust. But greatly as I should have rejoiced at such a simplification of our procedure, if justifiable, I did not then venture to test it in practice. I knew that with the safeguards which we then employed I could insure the safety of my patients, and I did not dare to imperil it by relaxing them. There is one golden rule for all experiments upon our fellow men. Let the thing tried be that which, according to our best judgment, is the most likely to promote the welfare of the patient. In other words, do as you would be done by.

"Nine years later, however, at the Berlin Congress, in 1890, I was able to bring forward what was, I believe, absolute demonstration of the harmlessness of the atmospheric dust in surgical operations. This conclusion has been justified by subsequent experience; the irritation of the wound by antiseptic irrigation and washing may therefore now be avoided, and nature left undisturbed to carry out her best methods of repair, while the surgeon may conduct his operations as simply as in former days, provided always that, deeply impressed with the tremendous importance of his object, and inspiring the same conviction in all his assistants, he vigilantly maintains from first to last, with care that, once learned, becomes instinctive, but for the want of which nothing else can compensate, the use of the simple means which will suffice to exclude from the wound the coarser forms of septic impurity.

"Even our earlier and ruder methods of carrying out the antiseptic principle soon produced a wonderful change in my surgical wards in the Glasgow Royal Infirmary, which, from being some of the most unhealthy in the kingdom, became, as I believe I may say without exaggeration, the healthiest in the world; while other wards, separated from mine only by a passage a few feet broad, where former modes of treatment were for a while continued, retained their former insalubrity. This result, I need hardly remark, was not in any degree due to special skill on my part, but simply to the strenuous endeavor to carry out strictly what seemed to me a principle of supreme importance.

"Equally striking changes were afterward witnessed in other institutions. Of these I may give one example. In the great Allgemeines Krankenhaus, of Munich, hospital gangrene had become more and more rife from year to year, till at length the frightful condition was reached that eighty per cent. of all wounds became affected by it. It is only just to the memory of Professor von Nussbaum, then the head of the establishment, to say that he had done his utmost to check this frightful scourge; and that the evil was not caused by anything peculiar in his management, was shown by the fact that in a private hospital under his care there was no unusual unhealthiness. The larger institution seemed to have become hopelessly infected, and the city authorities were contemplating its demolition and reconstruction. Under these circumstances, Professor von Nussbaum dispatched his chief assistant, Dr.

Lindpaintner, to Edinburgh, where I at that time occupied the chair of clinical surgery, to learn the details of the antiseptic system as we then practised it. He remained until he had entirely mastered them, and after his return all the cases were on a certain day dressed on our plan. From that day forward not a single case of hospital gangrene occurred in the Krankenhaus. The fearful disease pyemia likewise disappeared, and erysipelas soon followed its example.

"But it was by no means only in removing the unhealthiness of hospitals that the antiseptic system showed its benefits. Inflammation being suppressed, with attendant pain, fever, and wasting discharge, the sufferings of the patient were, of course, immenseiy lessened; rapid primary union being now the rule, convalescence was correspondingly curtailed; while as regards safety and the essential nature of the mode of repair, it became a matter of indifference whether the wound had clean-cut surfaces which could be closely approximated, or whether the injury inflicted had been such as to cause destruction of tissue. And operations which had been regarded from time immemorial as unjustifiable were adopted with complete safety.

"It pleases me to think that there is an ever-increasing number of practitioners throughout the world to whom this will not appear the language of exaggeration. There are cases in which, from the situation of the part concerned or other unusual circumstances, it is impossible to carry out the antiseptic system completely. These, however, are quite exceptional; and even in them much has been done to mitigate the evil which cannot be altogether avoided.

"I ask your indulgence if I have seemed to dwell too long upon matters in which I have been personally concerned. I now gladly return to the labors of others.

BACTERIA THE CAUSE OF DISEASE.

"The striking results of the application of the germ-theory to surgery, acted as a powerful stimulus to the investigation of the nature of the microörganisms concerned; and it soon appeared that putrefaction was by no means the only evil of microbic origin to which wounds were liable. I had myself very early noticed that hospital gangrene was not necessarily attended by any unpleasant odor; and I afterward made a similar observation regarding the matter formed in a remarkable epidemic of erysipelas in Edinburgh, obviously of infective character. I had also seen a careless dressing followed by the occurrence of suppuration without putrefaction. And as these non-putrefactive disorders had the same self-propagating property as ferments, and were suppressed by the same antiseptic agencies which were used for combating the putrefactive microbes, I did not doubt that they were of an analogous origin; and I ventured to express the view that, just as the various fermentations had each its special microbe, so it might be with the various complications of wounds. This surmise was afterward amply verified. Professor Ogston of Aberdeen, was an early worker in this field, and showed that in acute abscesses, that is to say, those which run a rapid course, the matter, although often quite free from unpleasant odor, invariably contains microörganisms belonging to the group which, from the spherical form of their elements, are termed micrococci; and these he classed as streptococci or staphylococci, according as they were arranged in chains or disposed in irregular clusters, like bunches of grapes. The German pathologist, Fehleisen, followed with a beautiful research, by which he clearly proved that erysipelas is caused by a streptococcus. A host of earnest workers in different countries have cultivated the new science of bacteriology, and while opening up a wide fresh domain of biology, have demonstrated in so many cases the causal relation between special microörganisms and special diseases, not only in wounds, but in the system generally, as to afford ample confirmation of the induction which had been made by Pasteur, that all infective disorders are of microbic origin.

"Not that we can look forward with anything like confidence to being able to see the *materies morbi* of every disease of this nature. One of the latest of such discoveries has been that by Pfeiffer of Berlin, of the bacillus of influenza, perhaps the most minute of all microörganisms ever yet detected. The bacillus of anthrax, the cause of a plague common among cattle in some parts of Europe, and often communicated to sorters of foreign wool in this country, is a giant as compared with this tiny being; and supposing the microbe of any infectious fever to be as much smaller than the influenza bacillus as this is less than that of anthrax—a by no means unlikely hypothesis—it is probable that it would never be visible to man. The improvements of the microscope, based on the principle established by my father in the earlier part of the century, have apparently nearly reached the limits of what is possible. But that such parasites are really the causes of all this great class of diseases can no longer be doubted.

"The first rational step toward the prevention or cure of disease is to know its cause; and it is impossible to overestimate the practical value of researches, such as those to which I am now referring. Among their many achievements is what may be fairly regarded as the most important discovery ever made in pathology, because it revealed the true nature of the disease which causes more sickness and death in the human race than any other. It was made by Robert Koch, who greatly distinguished himself, when a practitioner in an obscure town in Germany, by the remarkable combination of experimental acuteness and skill, chemical and optical knowledge, and successful micro-photography which he brought to bear upon the illustration of infective diseases of wounds in the lower animals; in recognition of which service, the enlightened Prussian government at once appointed him to an official position of great importance in Berlin. There he conducted various important researches; and at the London Congress, in 1881, he showed to us, for the first time, the bacillus of tubercle. Wonderful light was thrown, by this discovery, upon a great group of diseases which had before been rather guessed than known to be of an allied nature; a precision and efficacy never before possible was introduced into their surgical treatment, while the physi-

cian became guided by new and sure light as regards their diagnosis and prevention.

"At that same London Congress, Koch demonstrated to us his 'plate culture' of bacteria, which was so important that I must devote a few words to its description. With a view to the successful study of the habits and effects of any particular microbe outside the living body, it is essential that it should be present unmixed in the medium in which it is cultivated. It can be readily understood how difficult it must have been to isolate any particular microörganism when it existed mixed, as was often the case, with a multitude of other forms. In fact, the various ingenious attempts made to effect this object had often proved entire failures. Koch, however, by an ingenious procedure, converted what had been before impossible into a matter of the utmost facility. In the broth or other nutrient liquid, which was to serve as food for the growing microbe, he dissolved, by aid of heat, just enough gelatin to insure that, while it should become a solid mass when cold, it should remain fluid, though reduced in temperature so much as to be incapable of killing living germs. To the medium thus partially cooled, was added some liquid containing, among others, the microbe to be investigated; and the mixture was thoroughly shaken so as to diffuse the bacteria and separate them from each other. Some of the liquid was then poured out in a thin layer upon a glass plate and allowed to cool so as to assume the solid form. The various microbes, fixed in the gelatin and so prevented from intermingling, proceeded to develop each its special progeny, which, in course of time, showed itself as an opaque speck in the transparent film. Any one of such specks could now be removed and transferred to another vessel in which the microbe composing it, grew in perfect isolation.

"Pasteur was present at this demonstration, and expressed his sense of the great progress effected by the new method. It was soon introduced into his own institute and other laboratories throughout the world; and it has immensely facilitated bacteriological study.

"One fruit of it in Koch's own hands was the discovery of the microbe of cholera in India, whither he went to study the disease. This organism was termed by Koch from its curved form the 'comma bacillus,' and by the French the cholera vibrio. Great doubts were for a long time felt regarding this discovery. Several other kinds of bacteria were found of the same shape, some of them producing very similar appearances in culture-media. But bacteriologists are now universally agreed that, although various other conditions are necessary to the production of an attack of cholera besides the mere presence of the vibrio, yet it is the essential *materies morbi;* and it is by the aid of the diagnosis which its presence in any case of true cholera enables the bacteriologist to make, that threatened invasions of this awful disease have of late years been so successfully repelled from our shores. If bacteriology had done nothing more for us than this, it might well have earned our gratitude.

PREVENTIVE INOCULATION.

"I have next to invite your attention to some earlier work of Pasteur. There is a disease known in France under the name of *choléra des poules*, which often produced great havoc among the poultry yards of Paris. It had been observed that the blood of birds that had died of this disease were peopled by a multitude of minute bacteria, not very dissimilar in form and size to the microbe of the lactic ferment, to which I have before referred. And Pasteur found that, if this bacterium was cultivated outside the body for a protracted period, under certain conditions, it underwent a remarkable diminution of its virulence; so that, if inoculated into a healthy fowl, it no longer caused the death of the bird, as it would have done in its original condition, but produced a milder form of the disease, which was not fatal. And this altered character of the microbe, caused by certain conditions, was found to persist in successive generations cultivated in the ordinary way. Thus was discovered the great fact, of what Pasteur termed *atténuation des virus*, which at once gave the clue to understanding what had before been quite mysterious, the difference in virulence of the same disease in different epidemics.

"But he made a further very important observation, that a bird which had gone through a mild form of the complaint had acquired immunity against it in its most virulent condition. Pasteur afterward succeeded in obtaining mitigated varieties of microbes for some other diseases; and he applied with great success the principle which he had discovered in fowl-cholera for protecting the larger domestic animals against the plague of anthrax. The preparations used for such preventive inoculations he termed 'vaccins' in honor of our great countryman, Edward Jenner. For Pasteur at once saw the analogy between the immunity to fowl-cholera, produced by its attenuated virus, and the protection afforded against smallpox by vaccination. And while pathologists still hesitated, he had no doubt of the correctness of Jenner's expression *variolæ vaccinæ*, or smallpox in the cow.

"It is just a hundred years since Jenner made the crucial experiment of inoculating with smallpox a boy whom he had previously vaccinated, the result being, as he anticipated, that the boy was quite unaffected.

"While we cannot be astonished that the centenary of Jenner's immortal discovery should have failed to receive general recognition in this country, it is melancholy to think that this year should, in his native county, have been distinguished by a terrible illustration of the results which would sooner or later inevitably follow the general neglect of his prescriptions.

"But to return to Pasteur. In 1880 he entered upon the study of that terrible, but then most obscure disease, hydrophobia or rabies, which, from its infective character, he was sure must be of microbic origin, although no microorganism could be detected in it. He early demonstrated the new pathological fact that the virus had its essential seat in the nervous system. This proved the key to his success in this subject. One result that flowed from it has been the cause of unspeakable consolation to many. The foolish practice is still too prevalent of killing the dog that has bitten any one, on the absurd notion that, if it were mad, its destruction would prevent the occurrence of

hydrophobia in the person bitten. The idea of the bare possibility of the animal having been so affected causes an agony of suspense during the long weeks or months of possible incubation of the disease. Very serious nervous symptoms aping true hydrophobia have been known to result from the terror thus inspired. Pasteur showed that if a little of the brain or spinal cord of a dog that had been really mad was inoculated in an appropriate manner into a rabbit, it infallibly caused rabies in that animal in a few days. If, therefore, such an experiment was made with a negative result, the conclusion might be drawn with certainty that the dog had been healthy. It is perhaps right that I should say that the inoculation is painlessly done under an anesthetic, and that in the rabbit rabies does not assume the violent form that it does in the dog, but produces gradual loss of power, with little, if any suffering.

"This is the more satisfactory because rabbits in which the disease has been thus artificially induced are employed in carrying out what was Pasteur's greatest triumph—the preventive treatment of hydrophobia in the human subject. We have seen that Pasteur discovered that microbes might, under some circumstances, undergo mitigation of their virulence. He afterward found that under different conditions they might have it exalted, or, as he expressed it, there might be a *renforcement du virus*. Such proved to be the case with rabies in the rabbit; so that the spinal cords of animals which had died of it contained the poison in a highly intensified condition. But he also found that if such a highly virulent cord was suspended under strict antiseptic precautions in a dry atmosphere at a certain temperature, it gradually, from day to day, lost its potency, till, in course of time, it became absolutely inert. If now the emulsion of such a harmless cord was introduced under the skin of an animal, as in the subcutaneous administration of morphia, it might be followed without harm another day by a similar dose of a cord still rather poisonous; and so from day to day stronger and stronger injections might be used, the system becoming gradually accustomed to the poison, till a degree of virulence had been reached far exceeding that of the bite of a mad dog. When this had been attained, the animal proved incapable of taking the disease in the ordinary way, and, more than that, if such treatment was adopted after an animal had already received the poison, provided that too long a time had not elapsed, the outbreak of the disease was prevented. It was only after great searching of heart that Pasteur, after consultation with some trusted medical friends, ventured upon trying this practice upon man. It has since been extensively adopted in various parts of the world with increasing success as the details of the method were improved. It is not, of course, the case that every one bitten by a really rabid animal takes the disease, but the percentage of those who do so, which was formerly large, has been reduced almost to zero by this treatment, if not too long delayed.

"While the intensity of rabies in the rabbit is undoubtedly due to a peculiarly virulent form of the microbe concerned, we cannot suppose that the daily diminishing potency of the cord suspended in dry, warm air is an instance of attenuation of virus, using the term 'virus' as synonymous with the microbe concerned. In other words, we have no reason to believe that the special microorganism of hydrophobia continues to develop in the dead cord and produce successively a milder and milder progeny, since rabies cannot be cultivated in the nervous system of a dead animal. We must rather conclude that there must be some chemical poison present which gradually loses its potency as time passes. And this leads me to refer to another most important branch of this large subject of bacteriology, that of the poisonous products of microbes.

THE ANTITOXIN TREATMENT.

"It was shown several years ago by Roux and Yersin, working in the Institut Pasteur, that the crust or false membrane which forms upon the throats of patients affected with diphtheria contains bacteria, which can be cultivated outside of the body in a nutrient liquid, with the result that it acquires poisonous qualities of astonishing intensity, comparable to that of the secretion of the poison-glands of the most venomous serpents. And they also ascertained that the liquid retained this property after the microbes had been removed from it by filtration, which proved that the poison must be a chemical substance in solution, as distinguished from the living element which had produced it. These poisonous products of bacteria, or toxins, as they have been termed, explain the deadly effects of some microbes, which it would otherwise be impossible to understand. Thus, in diphtheria itself the special bacillus which was shown by Loeffler to be its cause does not become propagated in the blood, like the microbe of chicken cholera, but remains confined to the surface on which it first appeared; but the toxin which it secretes is absorbed from that surface into the blood, and so poisons the system. Similar observations have been made with regard to the microbes of some other diseases, as, for example, the bacillus of tetanus or lockjaw. This remains localized in the wound, but forms a special toxin of extreme potency, which becomes absorbed and diffused through the body.

"Wonderful as it seems, each poisonous microbe appears to form its own peculiar toxin. Koch's tuberculin was of this nature—a product of the growth of the tubercle bacillus in culture-media. Here, again, great effects were produced by extremely minute quantities of the substance, but here a new peculiarity showed itself, viz., that patients affected with tubercular disease, in any of its varied forms, exhibited inflammation in the affected part and general fever after receiving under the skin an amount of the material which had no effect whatever upon healthy persons. I witnessed in Berlin some instances of these effects, which were simply astounding. Patients affected with a peculiar form of obstinate ulcer of the face showed, after a single injection of the tuberculin, violent inflammatory redness and swelling of the sore and surrounding skin; and, what was equally surprising, when this disturbance subsided, the disease was found to have undergone great improvement. By repetitions of such procedures, ulcers which had previously been steadily advancing, in spite of ordinary treatment, became greatly

reduced in size and, in some instances, apparently cured. Such results led Koch to believe that he had obtained an effectual means of dealing with tubercular disease in all its forms. Unhappily, the apparent cure proved to be only of transient duration, and the high hopes which had been inspired by Koch's great reputation were dashed. It is but fair to say that he was strongly urged to publish before he was himself disposed to do so, and we cannot but regret that he yielded to the pressure put upon him.

"But though Koch's sanguine anticipations were not realized, it would be a great mistake to suppose that his labors with tuberculin have been fruitless. Cattle are liable to tubercle, and, when affected with it, may become a very serious source of infection for human beings, more especially when the disease affects the udder of cows, and so contaminates the milk. By virtue of the close affinity that prevails between the lower animals and ourselves, in disease as well as in health, tuberculin produces fever in tubercular cows in doses which do not affect healthy beasts. Thus, by the subcutaneous use of a little of the fluid, tubercle latent in internal organs of an apparently healthy cow can be with certainty revealed, and the slaughter of the animal after this discovery protects man from infection.

"It has been ascertained that glanders presents a precise analogy with tubercle as regards the effects of its toxic products. If the microbe which has been found to be the cause of this disease is cultivated in appropriate media it produces a poison which has received the name of mallein, and the subcutaneous injection of a suitable dose of this fluid into a glandered horse causes striking febrile symptoms which do not occur in a healthy animal. Glanders, like tubercle, may exist in insidious latent forms which there was formerly no means of detecting, but which are at once disclosed by this means. If a glandered horse has been accidentaliy introduced into a large stable this method of diagnosis surely tells if it has infected others. All receive a little mallein. Those which become affected with fever are slaughtered, and thus not only is the disease prevented from spreading to other horses, but the grooms are protected from a mortal disorder.

"This valuable resource sprang from Koch's work on tuberculin, which has also indirectly done good in other ways. His distinguished pupil, Behring, has expressly attributed to those researches the inspiration of the work which led him and his famous collaborator, the Japanese Kitasato, to their surprising discovery of antitoxin serum. They found that if an animal of a species liable to diphtheria or tetanus received a quantity of the respective toxin, so small as to be harmless, and afterward, at suitable intervals, successively stronger and stronger doses, the creature, in course of time, acquires such a tolerance for the poison as to be able to receive with impunity a quantity very much greater than would at the outset have proved fatal. So far we have nothing more than seems to correspond with the effects of the increasingly potent cords in Pasteur's treatment of rabies. But what was entirely new in their results was that, if blood was drawn from an animal which had acquired this high degree of artificial immunity, and some of the clear fluid or serum which exuded from it after it had clotted was introduced under the skin of another animal, this second animal acquired a strong, though more transient, immunity against the particular toxin concerned. The serum in some way counteracted the toxin or was antitoxic. But, more than that, if some of the antitoxic serum was applied to an animal after it had already received a poisonous dose of the toxin it preserved the life of the creature, provided that too long a time had not elapsed after the poison was introduced. In other words, the antitoxin proved to be not only preventive but curative.

"Similar results were afterward obtained by Ehrlich of Berlin, with some poisons not of bacterial origin, but derived from the vegetable kingdom; and quite recently the independent labors of Calmette of Lille, and Fraser of Edinburgh, have shown that antidotes of wonderful efficacy against the venom of serpents may be procured on the same principle. Calmette has obtained antitoxin so powerful that a quantity of it only a 200,000th part of the weight of an animal will protect it perfectly against a dose of the secretion of the poison-glands of the most venomous serpents known to exist, which, without such protection, would have proved fatal in four hours. For curative purposes larger quantities of the remedy are required, but cases have already been published by Calmette in which death appears to have been averted in the human subject by this treatment.

"Behring's darling object was to discover means of curing tetanus and diphtheria in man. In tetanus the conditions are not favorable; because the specific bacilli lurk in the depths of the wound, and only declare their presence by symptoms caused by their toxin having been already in a greater or less amount diffused through the system; and in every case of this disease there must be a fear that the antidote may be applied too late to be useful. But in diphtheria the bacilli very early manifest their presence by the false membrane which they cause upon the throat, so that the antitoxin has a fair chance; and here we are justified in saying that Behring's object has been attained.

"The problem, however, was by no means so simple as in the case of some mere chemical poison. However effectual the antitoxin might be against the toxin, if it left the bacilli intact, not only would repeated injections be required to maintain the transient immunity to the poison perpetually secreted by the microbes, but the bacilli might, by their growth and extension, cause obstruction of the respiratory passages.

"Roux, however, whose name must always be mentioned with honor in relation to this subject, effectually disposed of this difficulty. He showed by experiments on animals that a diphtheritic false membrane, rapidly extending and accompanied by surrounding inflammation, was brought to a stand by the use of the antitoxin, and soon dropped off, leaving a healthy surface. Whatever be the explanation, the fact was thus established that the antitoxic serum, while it renders the toxin harmless, causes the microbe to languish and disappear.

"No theoretical objection could now be urged against the

treatment; and it has during the last two years been extensively tested in practice in various parts of the world, and it has gradually made its way more and more into the confidence of the profession. One important piece of evidence in its favor in this country is derived from the report of the six large hospitals under the management of the London Asylums Board. The medical officers of these hospitals at first naturally regarded the practice with skepticism, but as it appeared to be at least harmless they gave it a trial; and during the year 1895 it was very generally employed upon the 2182 cases admitted, and they have all become convinced of its great value. In the nature of things, if the theory of the treatment is correct, the best results must be obtained when the patients are admitted at an early stage of the attack, before there has been time for much poisoning of the system, and accordingly we learn from the report that, comparing 1895 with 1894, during which latter year the ordinary treatment had been used, the percentage of mortality, in all the six hospitals combined, among the patients admitted on the first day of the disease, which in 1894 was 22.5, was only 4.6 in 1895; while for those admitted on the second day the numbers are 27 for 1894 and 14.8 for 1895. Thus, for cases admitted on the first day the mortality was only one-fifth of what it was in the previous year, and for those entering on the second it was halved. Unfortunately, in the lower part of London, which furnish most of these patients, the parents too often delay in sending in the children till much later, so that on an average no less than 67.5 per cent. were admitted on the fourth day of the disease or later. Hence the aggregate statistics of all cases are not nearly so striking. Nevertheless, taking it altogether, the mortality in 1895 was less than had ever before been experienced in these hospitals. I should add that there was no reason to think that the disease was of a milder type than usual in 1895; and no change whatever was made in the treatment except as regards the antitoxic injections.

"There is one piece of evidence recorded in the report which, though it is not concerned with high numbers, is well worthy of notice. It relates to a special institution to which convalescents from scarlet fever are sent from all the six hospitals. Such patients occasionally contract diphtheria, and when they do so the added disease has generally proved extremely fatal. In the five years preceding the introduction of the treatment with antitoxin the mortality from this cause had never been less than 50 per cent., and averaged on the whole 61.9 per cent. During 1895, under antitoxin, the deaths among the 119 patients of this class were only 7.5 per cent., or one-eighth of what had been previously experienced. This very striking result seems to be naturally explained by the fact that these patients, being already in a hospital when the diphtheria appeared, an unusually early opportunity was afforded for dealing with it.

"There are certain cases of so malignant a character from the first that no treatment will probably ever be able to cope with them. But taking all cases together, it seems probable that Behring's hope that the mortality may be reduced to five per cent. will be fully realized when the public have become alive to the paramount importance of having the treatment commenced at the outset of the disease.

"There are many able workers in the field of bacteriology whose names time does not permit me to mention, and to whose important labors I cannot refer; and even those researches of which I have spoken have been, of course, most inadequately dealt with. I feel this especially with regard to Pasteur, whose work shines out more brightly the more his writings are perused.

PHAGOCYTOSIS.

"I have lastly to bring before you a subject which, though not bacteriological, has intimate relations with bacteria. If a drop of blood is drawn from the finger by a prick with a needle and examined microscopically between two plates of glass, there are seen in it minute solid elements of two kinds, the one pale orange biconcave disks, which, seen in mass, give the red color to the vital fluid; the other, more or less granular spherical masses of the soft material called protoplasm, destitute of color, and therefore called the colorless, or white corpuscles. It has been long known that if the microscope was placed at such a distance from the fire as to have the temperature of the human body, the white corpuscles might be seen to put out and retract little processes or pseudopodia, and by their means crawl over the surface of the glass, just like the extremely low forms of animal life, termed, from this faculty of changing their form, amebæ. It was a somewhat weird spectacle, that of seeing what had just before been constituents of our own blood, moving about like independent creatures. Yet there was nothing in this inconsistent with what we know of the fixed components of the animal frame. For example, the surface of a frog's tongue is covered with a layer of cells, each of which is provided with two or more lashing filaments or cilia, and those of all the cells acting in concert cause a constant flow of liquid in a definite direction over the organ. If we gently scrape the surface of the animal's tongue we can detach some of these ciliated cells; and on examining them with the microscope in a drop of water we find that they will continue for an indefinite time their lashing movements, which are just as much living or vital in their character as the writhings of a worm. And, as I observed many years ago, these detached cells behave under the influence of a stimulus just like parts connected with the body, the movement of the cilia being excited to greater activity by gentle stimulation, and thrown into a state of temporary inactivity when the irritation was more severe. Thus each constituent element of our bodies may be regarded as in one sense an independent living being, though all work together in marvelous harmony for the good of the body politic. The independent movements of the white corpuscles outside the body were therefore not astonishing; but they long remained matters of mere curiosity. Much interest was called to them by the observation of the German pathologist Cohnheim, that in some inflammatory conditions they passed through the pores in the walls of the finest blood-vessels, and thus escaped into the inter-

stices of the surrounding tissues. Cohnheim attributed their transit to the pressure of the blood. But why it was that, though larger than the red corpuscles, and containing a nucleus which the red ones have not, they alone passed through the pores of the vessels, or why it was that this emigration of the white corpuscles occurred abundantly in some inflammations and was absent in others, was quite unexplained.

"These white corpuscles, however, have been invested with extraordinary new interest by the researches of the Russian naturalist and pathologist Metchnikoff. He observed that, after passing through the walls of the vessels, they not only crawl about like amebæ, but, like them, receive nutritious materials into their soft bodies and digest them. It is thus that the effete materials of a tadpole's tail are got rid of; so that they play a most important part in the function of absorption.

"But still more interesting observations followed. He found that a microscopic crustacean, a kind of water-flea, was liable to be infested by a fungus, which had exceedingly sharp-pointed spores. These were apt to penetrate the coats of the creature's intestine, and project into its body-cavity. No sooner did this occur with any spore than it became surrounded by a group of the cells which are contained in the cavity of the body and correspond to the white corpuscles of our blood. These proceeded to attempt to devour the spore, and if they succeeded in every such case the animal was saved from the invasion of the parasite. But if the spores were more than could be disposed of by the devouring cells (phagocytes, as Metchnikoff termed them) the water-flea succumbed.

"Starting from this fundamental observation, he ascertained that the microbes of infective diseases are subject to this same process of devouring and digestion, carried on both by the white corpuscles and by cells that line the blood-vessels. And by a long series of most beautiful researches he has, as it appears to me, firmly established the great truth that phagocytosis is the main defensive means possessed by the living body against the invasion of its microscopic foes. The power of the system to produce antitoxic substances to counteract the poisons of microbes is undoubtedly in its own place of great importance. But in the large class of cases in which animals are naturally refractory to particular infective diseases, the blood is not found to yield any antitoxic element by which the natural immunity can be accounted for. Here phagocytosis seems to be the sole defensive agency. And even in cases in which the serum does possess antitoxic, or, as it would seem in some cases, germicidal properties, the bodies of the dead microbes must at last be got rid of by phagocytosis, and some recent observations would seem to indicate that the useful elements of the serum may be, in part at least, derived from the digestive juices of the phagocytes. If ever there was a romantic chapter in pathology, it has surely been that of the story of phagocytosis.

"I was myself peculiarly interested by these observations of Metchnikoff, because they seemed to me to afford clear explanation of the healing of wounds by first intention under circumstances before incomprehensible. This primary union was sometimes seen to take place in wounds treated by water-dressing, that is to say, a piece of wet lint covered with a layer of oiled silk to keep it moist. This, though clean when applied, was invariably putrid within twenty-four hours. The layer of blood between the cut surfaces was thus exposed at the outlet of the wound to a most potent septic focus. How was it prevented from putrefying, as it would have done under such influence if, instead of being between divided living tissues, it had been between plates of glass or other indifferent material? Pasteur's observations pushed the question a step further. It now was, how were the bacteria of putrefaction kept from propagating in the decomposable film? Metchnikoff's phagocytosis supplied the answer. The blood between the lips of the wound became rapidly peopled with phagocytes, which kept guard against the putrefactive microbes, and seized them as they endeavored to enter.

"If phagocytosis was ever able to cope with septic microbes in so concentrated and intense a form, it could hardly fail to deal effectually with them in the very mitigated condition in which they are present in the air. We are thus strongly confirmed in our conclusion that the atmospheric dust may safely be disregarded in our operations, and Metchnikoff's researches, while they have illumined the whole pathology of infective diseases, have beautifully completed the theory of antiseptic treatment in surgery.

"I might have taken equally striking illustrations of my theme from other department in which microbes play no part. In fact, any attempt to speak of all that the art of healing has borrowed from science and contributed to it during the past half-century, would involve a very extensive dissertation on pathology and therapeutics. I have culled specimens from a wide field; and I only hope that in bringing them before you, I have not overstepped the bounds of what is fitting before a mixed company. For many of you, my remarks can have had little, if any, novelty; for others, they may, perhaps, possess some interest as showing that medicine is no unworthy ally of the British Association; that, while her practice is ever more and more based on science, the ceaseless efforts of her votaries to improve what have been fittingly designated *Quæ prosunt omnibus artes* are ever adding largely to the sum of abstract knowledge."

SOCIETY PROCEEDINGS.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Twenty-fourth Annual Session held in Buffalo, N. Y., September 15 to 18, 1896.

THE opening session was called to order promptly at 10 o'clock by the president, DR. EDUARDO LICEAGO of Mexico, and after the reports of various committees and other executive business, the regular program was taken up.

The morning was chiefly devoted to the consideration of the problems of the disinfection and sanitation of railroad cars and steamboats, papers being read by DRS. DOMINGO, ORVAÑANOS, City of Mexico; TOMAS NO-

RIEGA, Chinpas, and FREDERICK MONTIYAMBERT of Toronto. The Mexican delegates reported some specially distressing cases of the spreading of contagion by this means, and a brisk discussion as to ways and means of guarding against this source of danger followed.

In the afternoon a group of papers upon meat and milk infections were first presented by DRS. J. F. KENNEDY of Iowa, GARDNER F. SWARTS of Rhode Island, and D. E. SALMON of Washington, D. C.

DR. KENNEDY took the ground that inasmuch as the death-rate among children fed upon cow's milk was much higher than among those suckled at the breast, and this mortality was chiefly due to two things, dilution with water causing death by inanition and infection with various germs, that a most rigid inspection and testing of milk should be insisted upon. But even this might fail, unavoidably, at the most vital point, and, therefore, to ensure absolute safety all milk used by infants should be sterilized. Infection might occur simply by washing the cans with impure water. Tuberculosis was the chief danger, but typhoid, diphtheria, and scarlet fever were also frequently spread through this medium.

DR. SWARTS urged that farms should be established near all cities similar to that in operation near Buffalo where, at the suggestion of a number of physicians, every sanitary precaution was carried out in the dairy, the milk submitted to a bacteriological examination every week, and then certified to by them as pure and suitable for children's use. A higher price (ten cents per quart) had, of course, to be charged for such milk, but this was found to be gladly paid by the more intelligent class of parents that the dairyman had no difficulty in disposing of his entire output, and is talking of increasing the number of his cows to meet the demand.

DR. SALMON'S paper was the report of the committee on

ANIMAL DISEASES AND ANIMAL FOOD.

He urged the necessity of more stringent measures against the spread of anthrax, and of rabies, and of greater legal powers in dealing with the sale of tuberculous meats.

DR. BENJAMIN LEE of Philadelphia, took issue with Dr. Kennedy as to the healthfulness of sterilized milk, which, he declared, was robbed of some of its most valuable nutritive elements, and would cause both rickets and infantile scurvy. Both of these diseases had become much more common since the introduction of the sterilized article.

DR. HIBBARD of Indiana, doubted if any cases of tuberculosis could be positively traced to contaminated milk.

DR. LYMAN of Massachusetts, intimated that the chief danger lay rather in lowered resisting power on the part of the child, and urged pure air, sunlight, and sleep as indispensible safeguards.

DR. HALTON of Vermont, thought we were giving the public exaggerated notions of the danger of tubercular infection through milk.

DR. KINYOUN and DR. SALMON, in closing, cited cases of such infection, and declared the danger in no risk of exaggeration.

Two valuable papers followed upon the nomenclature of

DISEASES AND FORMS OF STATISTICS,

by DRS. EDUARDO LICEAGA, Mexico, and SAMUEL W. ABBOT of Massachusetts, but provoked little discussion.

The evening session, after addresses of welcome by Mayor Jewett and Rev. Thos. Slicer of Buffalo, and response by Dr. Peter Bryce of Toronto, was devoted to the address of the president.

He chose for his subject the history and development of public hygiene in America in general, and in Mexico in particular.

Rapid strides had been made in the last twenty years under the administration and encouragement of President Diaz. The question of the differential study of contagious diseases as to the degree and length of isolation and quarantine in each form, and also as to actual length of time which the infection of each persisted after cure, was taken up in detail, and many valuable suggestions offered. The necessity of a broader study by uniform methods of all the problems of contagion and disinfection over wide areas of country was urged, and the necessity of government inspection and regulation of viruses and serums, for inoculation purposes, insisted upon.

WEDNESDAY, SEPTEMBER 16TH.

After some preliminary announcements and reports, the Association considered the question of the disposal of garbage. The report of the committee on this subject was read by Rudolph Hering, C.E., of New York, and papers followed by Colonel Wm. F. Morse of New York, Dr. N. E. Wordin of Connecticut, and Major Wm. S. Tremaine, U. S. A. The paper of Colonel Morse was especially interesting, and all the readers united substantially in recommending that each household should carbonize its own refuse in some way, and turn it over to the municipal authorities in the shape of ashes. Two of them recommended the use of a box and cradle, which could be attached to or inserted in the kitchen stove-pipe, and Dr. Wordin exhibited two forms of such an apparatus, one with gas-burner attachment. With this latter, it was declared that not only kitchen refuse, but even feces could be completely incinerated without any escape of gases or odors, and the larger sizes could be used in place of water-closets where hydrant-water was not available. Dr. Gihon opened the discussion of the papers with the somewhat startling remark that the best way to dispose of half of our garbage was to eat it. We prepare nearly twice as much food as can reasonably be disposed of and throw away, or permit to spoil nearly half of it. Both economy and sanitation would be promoted if we could take a leaf out the books of the French in this regard.

The discussion was continued by Drs. Sternberg, Lee, Durgin, and Lucien Howe, who, in the main, agreed with the papers that the swill-pail and the garbage-barrel were themselves nuisances, which ought to be abated as much as possible.

Two papers upon

THE TRANSPORTATION AND DISPOSAL OF THE DEAD,

by DRS. CHAS. O. PROBST of Columbus, and BENJ. LEE of Philadelphia, and a brief discussion, completed the morning session.

The afternoon was devoted chiefly to the papers upon

SANITARY ORGANIZATION AND LEGISLATION,

by health officers, and the introduction of various resolutions. These latter referred to the prevention of blindness by Credé's method, the establishment of a National Board of Health and the Pasteur monument. This last provoked a most amusing little ebullition from Dr. Gihon, who moved first that each member who contributed to the secretary $1 for the Pasteur fund, be called upon for $10 toward the Rush monument fund of lingering fame. This being declared out of order, he promptly begged to amend the original motion by simply substituting "Benjamin Rush" for "Louis Pasteur," all of which were referred to the Committee of Resolutions.

THURSDAY, SEPTEMBER 17TH.

After one or two papers and reports upon the protection of rivers and other sources of water supply, WYATT JOHNSON, M.D., of Montreal, read a most interesting paper upon

THE SERUM TEST FOR TYPHOID FEVER.

It has been known for some time that the addition of a few drops of the blood-serum of a convalescent from typhoid fever to a pure, fresh culture of Eberth's bacillus, would produce a decided effect upon the organisms. It is now found that the blood of cases in comparatively early stages of the disease has the same power, and Dr. Johnson discovered that it still retains this potency even when dried, so that a drop of serum pressed out and allowed to dry upon a visiting card or scrap of paper can furnish a valuable diagnostic test. Specimens of cultures to which dried typhoid serum had been added, were shown alongside of others which had not been treated, and the contrast between the active and incessantly moving bacilli of the latter, and the motionless, matted and coagulated-looking germs of the former, was most striking.

A paper upon

THE PROPHYLAXIS OF TYPHOID,

was read by DR. ELIOT WOODBRIDGE of Ohio, but inasmuch as all references to treatment had been ruled out of it by the Sifting Committee according to the by-laws, as the author took pains to explain in his introductory remarks it was like "the play of Hamlet with the part of Hamlet omitted," and elicited no discussion.

Three very suggestive papers came next upon

THE USE OF FORMALDEHYDE AS A DISINFECTANT,

by PROFESSOR FRANKLIN C. ROBINSON of Bowdoin, and DRS. J. J. KINYOUN and E. A. DE SCHWEINITZ of Washington. A lamp for its generation was exhibited by the last-named, and all papers cited remarkable instances of its penetrating and sterilizing powers. In one experiment, infectious matter was introduced into the filling of mattresses, also smeared upon their surface and lightly rolled up inside them, and in both cases complete sterilization was effected by a comparatively short "charging" of the room with the vapor. It certainly seems as if this agent bid fair to become the chief reliance n house and car disinfection.

At the public session, in the evening, no little interest was excited by DR. ALBERT L. GIHON'S paper upon

THE BICYCLE IN ITS SANITARY ASPECTS.

It was a picturesque and dramatic arraignment of the wheel for its evil effects upon both sexes: upon men by humping the back, cramping the chest, and straining the heart, and upon women by throwing the weight of the body upon the perineum. The writer viewed with concern the prevalence of "scorching," and the idiotic attitudes necessitated by it, which, in his opinion, caused the vast majority of those who rode to receive more injury than benefit from the exercise. In the gentler sex he deplored first of all "the amazing revelations, for which bicycle costumes and their involuntary displays are responsible, of spindle-shanks, knock-knees, and less objectionable bow-legs," which "the machine" simply inflicts upon a suffering public without doing anything effective to remedy. On behalf of the esthetic sensibilities of the community he solemnly warned "the attenuated maiden" that "leather leggings and thick stockings only make her lack of symmetry more conspicuous," and the "stout matron, for whom no anatomical seat can be wide enough," that her "too-well-delineated outlines look much better when decorously veiled by a skirt." The day, he hoped, would soon come when "all women will realize that the spectacle of clumsily clad legs, working up and down like piston-rods, is not attractive to others, and is, after a while, monotonous and wearisome to themselves." Besides which it is unhealthy, because the horn of the saddle presses upon the perineum and threatens the welfare of generations yet unborn. The narrow saddle, with its hard horn, supports the woman bicyclist "as upon the point of a wedge," and, by its local injurious effects, far overbalances any value as exercise possessed by the wheel.

The discussion was opened by DR. ELIZA MOSHER of Ann Arbor, Mich., who, from the standpoint of a practising gynecologist, vigorously attacked Dr. Gihon's position and disputed most of his assertions. Intemperance is, of course, injurious here as elsewhere, but in her experience the vast majority of women riders were benefited in every way physically by the use of the wheel. The mysterious evils spoken of by Dr. Gihon might occur, but she had never met with a single case as yet, and on the other hand, had seen "woman after woman and girl after girl, by riding a bicycle, recover from maladies of which I had been unable to cure her before." As a means of healthful, vigorous exercise, an emancipator from the tyranny of dress, and an exhilarating relief from worry and nerve-strain, the bicycle had no equal.

The report of the committee on Alcoholic Drinks was a most refreshing piece of manly, scientific frankness. It boldly declared that the confusing and inclusion of the moderate drinker with the habitual drunkard, *à la* Murphy, was extremely harmful, and that the promotion of the regular dietetic use of vinous and light malt liquors was the best means of combating drunkenness. As the most practical remedies for the abuse of alcohol the committee recommended the increase of taxation upon distilled liquors, its removal or great diminution upon light wines, beer, cider, etc., a sanitary inspection of all drinks

sold over bars, and the encouragement of good wine-culture and good wine-making. The report closed with the ringing declaration: "Temperance is to be recommended rather than prohibition. We are heartily in favor of temperance or moderate drinking, and are as heartily opposed to prohibition." The remainder of the evening was devoted to consideration of the management of public baths.

FRIDAY MORNING, SEPTEMBER 18TH.

The last session of the Association was called to order by President Liceaga with an almost undiminished number of delegates in attendance. A considerable amount of unfinished and executive business was disposed of before a sudden and somewhat unexpected interest was developed by the report of the Advisory Council recommending Toronto as the next place of meeting. This seemed to cause such difference of opinion in the meeting that a vote was called for, and Nashville and Philadelphia both having been placed in nomination, a large majority of the delegates were found to prefer the latter city, which, accordingly, was decided upon. Dr. H. B. Horlbeck of Charleston, S. C., was elected president for the coming year; Dr. Peter Bryce of Toronto, first vice-president, and Dr. Ernest Wende of Buffalo, second vice-president.

JOSÉ RAMIREZ, M.D., of Yucatan, presented an abstract of a valuable paper

ON STATISTICS OF VACCINATION AND MORTALITY FROM SMALLPOX IN THE CITY OF MEXICO.

There has been, fortunately, practically no popular opposition to vaccination in the Sister Republic, and as it has been compulsory since 1891, nearly every individual in the City of Mexico has been protected by its performance. The result has been that, whereas smallpox used to form quite an important factor in the death-rate within recent years, it has now practically ceased to figure in the returns. Deaths from it are rare and usually occur in foreigners or recent arrivals from other States who have not been vaccinated.

A. N. BELL, M.D., of New York, followed with a brief but pointed paper upon

DRUNKENNESS, A VICE; IT SHOULD BE SO TREATED.

He took the ground that neither heredity nor disease had much to do with the causation of drunkenness. Inherited appetite for liquor was usually proved by finding one or more drunkards among the patient's ancestors or family. These could be found readily in almost every family (not even excluding the families of those present), if the search were pushed far enough. It may become a disease by neglect and repeated indulgence, and of course give rise to diseased conditions, but primarily it is a vice and not a disease. He pointed out that drunkenness is regularly associated with and leads to crime, pauperism, vice, and every form of moral degradation rather than physical. Drunkenness should be made a misdemeanor with increasing punishments, while the habitual drunkard should be first deprived of civil rights, and finally, if he persisted, confined in an appropriate institution, permanently or till such time as he gave good evidence of reformation, on the plan, in fact, of the "indeterminate sentence," as now applied to other habitual criminals.

Other papers were read, among them: "On the Prophylaxis of Scurvy by Pulque," by Francisco M. Baca, M.D., Puebla, Mex.; "The Relation of Noises to Public Health," by W. C. Krauss, M.D., of Buffalo; one which was not inappropriately titled "The Protection of the Innocent from Gonorrhea," by Ferd. C. Valentine, M.D. of New York (by "deep injection" methods that alone are sure to cure in ten days); and lastly on "The Necessity of Isolating Beds in Hospitals by Means of Windows Between Them," by Jesus E. Monjarás, M.D., of San Luis Potosi, Mex., but owing to the crowded program and nearness of the hour of adjournment, little discussion was possible. The one fault of the entire meeting was the attempt to discuss too large a number of papers at each session, from eight to fourteen being listed for every sitting, so that many of them had to be read by title or abstract and the discussions badly crippled. After an eloquent address in Spanish by President Liceaga, translated by his son, the Association adjourned to meet in Philadelphia next October.

SECOND INTERNATIONAL CONGRESS OF GYNECOLOGY AND OBSTETRICS.

Held at Geneva, Switzerland, from August 31 to September 5, 1896.

THE address of welcome was made by Dr. Bétrix, who announced that representatives were present from France, Great Britain, Italy, Belgium, Spain, Sweden, the United States of America, Argentine Republic, and Switzerland. M. Lachenal, the Swiss President, dwelt on the great advances recently made in the diseases of women. Professor Runcin referred to the loss sustained by the Congress through the death of M. Vultict.

At the session of September 1st DR. G. BOUILLY of Paris, spoke on

THE TREATMENT OF PELVIC SUPPURATIONS.

Upon the knowledge of the exact cause of pelvic suppuration must rest the choice of the method of treatment. Considered surgically, pelvic abscesses may be divided into four classes:

(1) Abscess of the cellular tissue, parametritis. (2) Abscess of the tubes or ovaries, pyosalpingitis and suppurative oöphoritis. (3) Peritoneal abscess, pelvic peritonitis, suppurative hematocele. (4) Complicated abscesses, involving more than one organ, and possibly with sinuses leading to the skin or elsewhere.

Rejecting puncture as to-day unworthy of consideration, except as a means of diagnosis, the three methods of treatment are:

(1) Incision and drainage, abdominal or vaginal; (2) Exposure or removal of suppurating pockets by laparotomy, or (3) By the vagina, including hysterectomy, with or without morcellement of the uterus: (*a*) Removal of small unilateral collections per vaginam, without hysterectomy; (*b*) Removal by laparotomy of uterus and adnexæ.

Simple incision, with drainage, is the method of choice, and is applicable in acute abscesses, whether cellular or

peritoneal in origin, such as post-puerperal, or gonorrheal, or following operation, or in suppurative hematoceles. Thanks to better vaginal asepsis, and especially better drainage, incision and drainage are also applicable to many cases of encysted abscesses from the adnexæ. This treatment is most successful if the sac is unilateral, thin-walled, and situated low down. This simple operation give more cures than one would at first believe, and if it fail, a persisting sinus does not complicate a possible later vaginal hysterectomy.

Laparotomy and vaginal hysterectomy are not rival operations in the treatment of pelvic suppuration; each has its indications. If the lesion is surely or probably unilateral, especially in a young woman, laparotomy, as affording an opportunity for inspection of the adnexæ, is the operation of choice. This consideration is less strongly urged when there is a probability of the suppurative nature of the trouble than in case of cysts, etc., as suppuration is likely to affect both sides. In case of bilateral lesions, the situation of the purulent sacs, with reference to the uterus and vaginal vault, is important in determining the choice of operation. With these restrictions, vaginal hysterectomy can accomplish all that laparotomy can, and in some cases, by the former operation, conditions can be reached and cured that could not be reached by laparotomy without great danger. In abscesses separated from the peritoneal cavity by dense fibrous tissue, or in chronic abscesses with or without fistulæ, whose removal would be difficult or impossible, the removal of the uterus per vaginam is an operation relatively simple, and good drainage is thus secured. To attempt, in these cases, the enucleation of the abscesses is unnecessarily to increase the risk to the patient.

The operative results obtained by laparotomy ought not to be held to be proof of the superiority of that operation, as the recent figures of vaginal hysterectomy are much better than the former ones, and the cases subjected to laparotomy are simpler than those in which vaginal hysterectomy is performed. The immediate recovery from the latter is more rapid and the ultimate results are better.

In conclusion, in the large majority of cases in which incision and drainage are insufficient, vaginal hysterectomy represents the method *par excellence* of treatment of pelvic suppuration, and only when it is contraindicated is laparotomy in order.

DR. HOWARD KELLY of Baltimore, said that vaginal puncture ought to be attempted before recourse is had to laparotomy in the following cases:

(1) When there are compact inflammatory pus-cavities at the sides of or behind the uterus, in close contact with the vagina and separated by adhesions from the peritoneal cavity; (2) in old cases, in which a fistula exists opening into the rectum or bladder, or through the abdominal wall; (3) in cases of large hydrosalpinx easily accessible per vaginam; (4) for encysted pelvic peritonitis.

In such cases this operation presents the following advantages: (1) It is not followed by nervous troubles, as is the case after hystero-salpingo-oöphorectomy; (2) the functions of menstruation and conception are preserved; (3) rapid recovery—eight to ten days; (4) no danger of wounding the intestine, as may occur during difficult pelvic enucleation; (5) mortality less than two per cent.

Its dangers are: (1) Hemorrhage; (2) perforation of the rectum or the intestine (two cases); (3) penetration of the peritoneal cavity and death from infection (one case).

The following conditions will prevent complete recovery: (1) The presence of cellulitis extending to the pelvic walls and compressing the nerves and vessels; (2) contraction of the rectum due to the presence of perirectal inflammatory tissue; such tissue will persist and cause post-operative troubles.

In some cases exploratory incision will be necessary: (1) To determine the exact condition and the necessity for radical operation; (2) to avoid puncture of the intestine if lying between the abscess cavity and the vaginal wall; (3) to facilitate complete evacuation of the pus or to guide the instrument into old pockets.

Vaginal puncture is indicated especially in young married women and girls, upon whom a radical operation ought not to be performed until conservative treatment has been exhausted.

If an exploratory incision is made, the hands which make the incision and the examination through the wound, should not be used in the vaginal part of the operation. The steps of the procedure would then come in the following order: (1) Disinfection of the vagina; (2) selection of the spot most favorable for puncture, avoiding arteries, ureters, and bladder; (3) introduction of the finger or the scissors into the abscess cavity and enlargement of the opening; (4) the use, if necessary, of large uterine dilators; (5) lavage of the abscess cavity with normal salt solution, if there is no reason to suspect a communication with the abdominal cavity; (6) drainage by gauze, rubber tube, or silver cannula.

Conservative operative treatment would consist of (1) separation of adherent purulent tubes from the vagina and their puncture; (2) removal of the tube or ovary of one side.

The indications for salpingo-oöphorectomy, either simple or including one horn of the uterus, are: (1) Simple pyosalpinx. (2) Simple pyosalpinx with an isolated purulent focus in the uterine horn.

The indications for hysterosalpingo-oöphorectomy are: (1) Double simple pyosalpinx inaccessible to vaginal puncture. (2) Double adherent pyosalpinx, accompanied by purulent metritis and endometritis. (3) Pelvic abscess accompanied by appendicitis. (4) Pelvic abscess complicated by adhesions, comprising the small intestines. (5) Pelvic abscess with fistulous tract opening into the sigmoid flexure or the small intestine. (6) Pelvic abscess accompanied with myomata.

The method of performing hysterosalpingo-oöphorectomy by operating from left to right, or vice versa, presents the following advantages: (1) Great facility. (2) Easy recognition of the state of the lesions. (3) Easy removal of the tumors because they are attacked at the side where they are least adherent. (4) The vessels are easily clamped. (5) Abdominal drainage is unnecessary. (6)

Avoidance of post-operative residues, adhesions, intestinal obstruction, peritonitis.

In order to drain through the uterine pedicle the cervical canal is dilated, and the gauze is introduced from the abdomen through the cervix into the vagina. The peritoneum is sutured above the uterine pedicle.

Dr. Sanger of Leipzig, gave the following principles as governing German gynecologists in cases of pelvic suppurations:

(1) Indications must be most serious before an operation is resorted to. (2) The operation should be the most simple possible. (3) One must always choose the most appropriate operation for the given case in relying for that on the clinical, anatomical, and bacteriological diagnosis.

The greater number of gynecologists reject vaginal hysterectomy in cases of frequent pelvic suppurations; they prefer, as a rule, to operate by the abdomen.

The puncture is limited to the cases of encapsulated abscesses or to purulent collections in closed organs. One cannot hope for success unless the pus is sterile. In this manner one must treat only those cases where the purulent collection can be reached without crossing the cavity of the pelvis.

The incision is indicated in intraperitoneal or extraperitoneal purulent collections.

The incision is nearly always the preferred operation in chronic or single purulent collections where the pus is sterile. The incision is also indicated in certain acute cases, such as suppurations in Douglas' cul-de-sac.

Celiotomy is always indicated in case of purulent collections which form by their dimensions a real tumor. Celiotomy and drainage are all that are necessary in the case of encapsulated foci, unless the annexes and other organs are diseased and must be removed.

All suppurated organs must be entirely removed.

The indications for drainage are: (1) When virulent pus has contaminated the hand of the operator or an intact part of the abdomen. (2) When hemostasis is not perfect or there may have been at the same time a discharge of pus. (3) When there is a fistula or a perforation of the intestines.

The drainage (abdomino-vaginal) with gauze does not guarantee either the perfect flow of the secretions or the isolation of the rest of the abdominal cavity, unless a peritoneal band may have been formed above.

Dr. Richelot of Paris, said that it is not possible to decide exclusively for any one of the three methods; that each had its advantages.

The direct vaginal incision, the oldest method, is conservative, and more easily performed than a hysterectomy, but it is not adapted to all cases. It does not always succeed. Often a focus of suppuration is left behind when the puncture has healed, and this may give rise to new infection, a new abscess, and a return of all the trouble which it was intended to relieve. It is especially indicated in recent cases, and in *post-partum* suppuration, when, owing to the great friability of the tissues, extirpation is especially dangerous.

Laparotomy, though immediately successful, often fails in that it leaves in the pelvis, a congested, painful, and often infected uterus, which may render necessary a secondary hysterectomy. Its true field is where there are organs to be preserved. The age of the patient and the certainty, or the hope of a unilateral lesion, are also to be considered.

Vaginal hysterectomy in his hands has given a mortality of only 4½ per cent. in 569 cases. After the removal of the uterus, the tubes and ovaries give much less trouble than the presence of the uterus when they have been removed.

The popularity of vaginal hysterectomy rests on the use of clamps. It is no disgrace to use a great many, and he never introduces the tamponade as long as there is a drop of blood.

Dr. Hartmann of Paris, called attention to the fact that many patients are cured by medical treatment. It is therefore wise in all cases before operation to see what can be accomplished by rest in bed and vaginal antisepsis. Intrauterine treatment, dilatation, and curetting, are sometimes successful, but never in cases in which there are large circumscribed collections.

Dr. Henrotin of Chicago, emphasized the importance of an incision into the posterior cul-de-sac with the first sign of genital infection. By this means one obtains often only a slight serous discharge, which becomes purulent only after some days. The finger is introduced and exudates, if found, are broken up. If there is a very extensive exudate, an opening is also made in the anterior fornix. This early treatment prevents more serious trouble, and is far superior to curetting the uterus, which has been known to hasten the spread of the infection.

Dr. Sabino Coelho of Lisbon, has operated upon twelve patients by an incision through the anterior vaginal vault, as recommended by Martin. Pyosalpinx existed in nine cases, suppurative oöphoritis in the other three. The tumors ranged in size from a mandarin to an orange. All the operations were made without any accident, and the speaker holds that in unilateral cases this operation is preferable to hysterectomy, as it leaves the woman still capable of conception, and is preferable to laparotomy as it avoids the abdominal scar and its dangers.

Dr. Reynier of Paris, thought that there was danger in leaving behind inflamed adnexæ. These often give rise to troubles requiring further operation. Of the two, he was inclined to think contrary to Segond, that the remaining adnexæ were more troublesome than the remaining isolated uterus. He is in favor of laparotomy, which enables the operator to see what he is doing, and to make a clean operation by the removal of all diseased tissue.

Dr. Larozenne of Lyons has tried to make an incision stopping four or five centimeters from the pubis. He rarely has hernias by his method.

Dr. Quérel of Marsailles, practises buried suture, closing the peritoneum with catgut. The muscles and aponeurosis are reunited by braided silk. For large hernias he inserts a layer of calcified bone between the aponeurosis and the muscle.

Dr. Condamin of Lyons, practises the lacing suture for large hernias and umbilical hernias.

(To be continued.)

ANNOUNCEMENT.

ANTITOXIN COLLECTIVE INVESTIGATION (SECOND) AMERICAN PEDIATRIC SOCIETY.

To the Profession:

The American Pediatric Society are encouraged to ask the coöperation of the profession in a further collective investigation. Laryngeal diphtheria is believed to furnish a crucial test for antitoxin; the present aim is to ascertain (1) what percentage of cases of laryngeal diphtheria recover without operation, under antitoxin treatment; (2) what percentage of operative cases recover.

The Socie y asks for records of cases of *diphtheria involving the larynx, whether operated upon or not, occurring in private practice in the United States and Canada, treated with antitoxin.* It is expected that cases occurring this year will probably be treated with reliable preparations of the serum, will be treated early, and will be given efficient doses. In order to secure data which shall make the tables complete, circulars containing blanks for ten cases have been printed, and are now ready for distribution. It is desired that physicians shall fill out the circulars as cases occur, not trusting to memory, and shall urge their friends having similar cases, to report them. Circulars can be had by applying to the committee (address below). Several groups of cases in the first investigation arrived too late and were lost to the report. It is desired that circulars as soon as filled (ten cases) be returned to the committtee. The collection of cases must close at the end of March, 1897. The second report is designed to be a study of cases occurring between the closing of the first report, May 1, 1896, and the closing of the present collective investigation, April 1, 1897.

For extra circulars (blanks), for returning circulars (filled), and for further information please address the chairman of the committee:

W. P. NORTHRUP, M.D.

No. 57 EAST SEVENTY-NINTH STREET,
NEW YORK, October 1, 1896.

[To secure as great uniformity as possible in the treatment, the following suggestions are offered as they appeared in the resolutions of the Pediatric Society on accepting the first report:

1. *Dosage.*—For a child over two years old, the dosage of antitoxin should be, in all laryngeal cases with stenosis, and in all other severe cases, 1500 to 2000 units for the first injection, to be repeated in from eighteen to twenty-four hours if there is no improvement; a third dose after a similar interval, if necessary. For severe cases in children under two years, and for mild cases over that age, the initial dose should be 1000 units, to be repeated as above if necessary; a second dose is not usually required. The dosage should always be estimated in antitoxin units, and not of the amount of serum.

2. *Quality of Antitoxin.*—The most concentrated strength of an absolutely reliable preparation.

3. *Time of Administration.*—Antitoxin should be administered as early as possible on a clinical diagnosis, not waiting for a bacteriological culture. However late the first observation is made, an injection should be given, unless the progress of the case is favorable and satisfactory.]

REVIEWS.

SYSTEM OF SURGERY. Edited by FREDERIC S. DENNIS, M.D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, etc., etc., assisted by JOHN S. BILLINGS, M.D., LL.D.Edin. and Harv.; D.C.L. Oxon.; Deputy Surgeon-General U. S. A. Vol. IV. Tumors—Hernia—Surgery of the Alimentary Canal—Appendicitis—Surgery of the Liver and Biliary Passages, of the Uterus, of the Ovaries and Tubes — Gynecological Surgery — Symphysiotomy — Surgery of the Thyroid—Surgical Peculiarities of the Negro—Surgery of the Female Breast—Use of the Röntgen Rays in Surgery. Profusely Illustrated, 8 vol.; pp. 970. New York and Philadelphia: Lea Brothers & Co.; 1896.

As may appear from the list of authors concerned in its preparation, this final volume maintains the standard of its predecessors in the series. Among the subjects discussed in it are some in which the most conspicuous of the advances of modern surgery have been made.

It opens with an article on tumors, by the editor. This, which occupies one hundred pages, is supplemented by a brief essay on the microscopic appearances of these structures, from the pen of Dr. E. K. Dunham. The nomenclature and classification of new growths here given is credited to Dr. J. W. S. Gouley. It does not differ materially from that recently proposed by Sutton, but seems to us to be needlessly complicated by the multiplication of terms and subdivisions. With regard to treatment, space is deservedly given to the discussion of Coley's method of dealing with inoperable cases by the injection of mixed toxins. Some of the reported results are so striking as to suggest the idea that further experience may lead to an extension of this procedure to some of the cases now regarded as amenable to operation.

Abdominal surgery next comes under consideration, in a series of articles by well-known authors. Hernia is discussed by Drs. Bull and Coley of New York. The surgery of the alimentary canal, from the pharynx to the ileocecal junction, has been assigned to Dr. M. H. Richardson of Boston, who has had the assistance of Dr. Farrar Cobb of the same city. Appendicitis is made the subject of two articles, the first by Dr. Hartley of New York, on the clinical and pathological features of the disease, the second, by Dr. McBurney, on its surgical treatment. A chapter on the surgery of the large intestine is contributed by Dr. L. S. Pilcher of Brooklyn, and one on that of the liver and biliary passages by Dr. Robert Abbe of New York.

The four following chapters are upon gynecological topics. Dr. William M. Polk of New York, takes up the surgical disorders and diseases of the uterus, Dr. Joseph Taber Johnson of Washington, D. C., those of the ovaries and tubes. Minor gynecological surgery is set forth by

Dr. H. C. Coe of New York; while a separate article by Dr. W. T. Lusk of New York, is devoted to symphysiotomy.

The surgery of the thyroid gland is the subject of a special chapter by Drs. R. F. Weir and E. M. Foote of New York; and this is followed by a discussion of the surgical peculiarities of the negro, by Dr. Rudolph Matas of New Orleans. Further study in this direction, and a comparison of the varying features and susceptibilities of different races, would seem to be invited by the opportunities for such investigation afforded in several of the great cities of the country.

The subject of diseases of the breast is treated by the editor himself. The volume concludes with a brief sketch, by Dr. W. W. Keen of Philadelphia, of skiagraphy by means of the Röntgen or X-rays.

All the articles now enumerated are the work of men of reading, observation, and experience, and are fully "up to date." With their teachings we have no fault to find; but we think the student, and perhaps the average practitioner, will sometimes wish that they had been written on a lower plane, or at least with more of elementary detail. For instance, the article on the X-rays opens with the statement that pictures were taken "by means of certain rays emanating from a Crookes' vacuum tube." But unless the reader happens to know what a Crookes' vacuum tube is, and how rays are made to emanate from it, and how "certain rays" differ from other rays emanating from it, the whole matter still remains as Cicero's speech was to Casca, Greek to him.

Abundant evidence is afforded throughout this volume of the familiarity of the authors with foreign, and especially with German, literature. We cannot but note with regret that they seem to have found in the writings and labors of their fellow countrymen almost nothing worthy of citation or reference.

The mechanical execution of this book is highly creditable, and the illustrations are, for the most part, exceptionally fine.

A Treatise on Appendicitis. By John B. Deaver, M.D. Philadelphia: P. Blakiston & Co. Pp. 164.

The author of this treatise states in the preface that the work "has been prompted by the belief that the importance of this affection entitles it to a more thorough and exhaustive study than has usually heretofore been accorded it." This is to be construed into a promise to the purchaser of the book that it shall contain something which has not appeared heretofore, and that, with this in view, a "more thorough and exhaustive study" will be given to the subject than has been given by previous writers. No one will question the importance of the affection, and in view of this, a promise based upon such a statement of fact becomes a most solemn obligation. The expectation of the reader is still further enhanced by the assertion, duly set forth, that "the observations herein contained are the result of an experience in the treatment of over five hundred cases." The concluding sentence of the book, however, shows that these were all operative cases, and it is therefore fair to assume that the experience of the author is confined to the operative treatment of the disease.

He who seeks for something new in the author's presentation of the subject will be disappointed. The chapter upon "History" is largely a compilation from Talamon's "Appendicite et Périty phlite," published in 1892, and the more recent work of Hawkins upon the "Diseases of the Vermiform Appendix" (1895).

In the chapter upon "Etiology," the usually recognized causes of the disease are given, but no new light is thrown upon the subject. He follows Talamon in the belief that acute indigestion plays a very important rôle in the etiology of appendicitis, and, while admitting that seeds and other foreign bodies have been found in the appendix, contends, with most recent writers, that, in the large majority of cases, the supposed seeds were fecal concretions.

In the chapter upon "Pathology," the four stages given by Fowler are followed. The lessened vitality and anatomic peculiarities of the organ are acknowledged to be reasons for the more frequent invasion of the appendix by microörganisms, as compared with other portions of the intestinal tract. In the present state of our knowledge upon the subject, the statement that "the most important determining cause of an invasion by the microörganisms is the existing virulence of the colon bacillus," is scarcely warranted.

Twenty-seven pages are devoted to the subject of diagnosis. Issue might be taken with the author upon the accuracy of the statement contained in the opening paragraph of the chapter, to wit, "When the three cardinal symptoms, viz., sudden onset of acute abdominal pain, with or without vomiting, occurring in one previously well; unilateral rigidity of the lower abdominal wall; tenderness over the site of the appendix—the diagnosis of appendicitis is *unexceptionally* warranted." (Italics ours). This statement fails to take into account the possibilities of a ruptured right tubal pregnancy, rupture of a right pyosalpinx in a patient with few or no previous symptoms, and twisting of the pedicle of a small right-sided ovarian cystoma, to say nothing of acute intestinal obstruction in the neighborhood of the ileocecal valve, all of which, while they fully justify the operator in opening the abdomen, may lead to diagnostic error if only the three symptoms mentioned are taken into account.

The statement made by an eminent medical authority that ninety-five per cent. recover without operation, is undoubtedly based upon insufficient diagnostic data, and is none too vigorously opposed by the author. While it is probably true that there is a certain and definite proportion of cases which recover without operation, it is also true, as stated by our author, that "it is impossible to foretell what will be the outcome of any attack."

In the matter of treatment, the author states that "my observation has forced me to the conclusion that there is but one course to pursue in order to obtain the best possible results, viz., to remove the appendix as soon as the diagnosis has been made." Without doubt many medical practitioners will object to this, and will back up their objection by the recital of cases which have recovered without operation.

It is probably true that much may be said upon both sides of the question when the line is as closely drawn as our author draws it, and it is not too much to say that indiscriminate opening of the abdomen at the hands of incompetent operators may be responsible for as many deaths as over-conservatism in the expectant treatment of appendicitis.

Many of the plates are placed in the book without reference to the relevancy of the accompanying text, and have facing them pages occupied entirely by the history of cases, instead of matter descriptive of the plates.

The general mechanical makeup of the book is such as to reflect credit upon the publishing firm whose name appears upon the title page.

DIE KRANKHEITEN DER WARMEN LANDER. Ein Handbuch für Aerzte, von DR. B. SCHEUBE. Jena, 1896. Verlag von Gustav Fischer.

[Tropical Diseases. A Handbook for Physicians, by Dr. B. Scheube. Published by Gustav Fischer. Jena, 1896].

THE author of this book is already well-known to the medical profession through his writings on beriberi; the most authoritative in existence. He was formerly professor in the medical school at Kioto, and his training and experience entitle him to speak positively on tropical diseases. We have no hesitation in saying that this book surpasses every one dealing with the same subject that has come to our notice. The 450 pages comprise five chapters which deal respectively with, (1) general infectious diseases; (2) intoxication diseases; (3) diseases caused by animal parasites; (4) organic diseases, and (5) unclassified diseases. The first and fourth parts will be found most interesting and instructive to physicians of the Occident and temperate climates, although one cannot read any of the other chapters without enlarging his medical knowledge and modifying his point of view. Under the general infectious diseases detailed and elaborate descriptions are given; among others of bubo-pest, an infectious disease of great acuteness and severity, characterized by inflammation of the glands, development of carbuncles, great pyrexia, and profound prostration; dengue fever; yellow fever; Mediterranean or Neapolitan fever; malaria of the tropics; beriberi, and lepra arabum. Each of these are discussed in the completest way; first the name, the natural history, and geographical distribution; the etiology; the clinical picture, or symptom-complex and its variations; the diagnosis, differential diagnosis, and prognosis; the pathological anatomy, and, finally, the therapy. And under the latter the prophylaxis, as it deserves, receives detailed consideration. In fact, one of the most valuable features of the work, and one that cannot fail to be attended with material benefit, is the prominence given to discussion of prophylactic measures. In no part of the book is this more apparent than in the discussion of beriberi and malaria, two diseases almost completely preventable, which are, at least, robbed of their malignancy by the observance of general and personal hygienic measures. The etiology of malarial fevers is handled in a most masterful manner; the various parasites—the quartan, the tertian, the quotidian, the malignant tertian, the half moon-shaped of Laveran, the *corpora flagella* or polymitous form—are all taken up in detail, and their claims for preëminency as causative factors carefully weighed.

The chapter on beriberi is sufficiently referred to when we say that it is in reality a digest of the author's book on that form of epidemic multiple neuritis, to which the name beriberi is given. His description must remain a standard from a clinical standpoint for all time, and from a pathological standpoint until the bacteriological investigation reveals the real causes of the disease.

In the chapter on intoxication diseases pellagra is described.

The least satisfactory chapters in the book, and the ones that do not materially advance our knowledge of the diseases considered, either from a historical or from a clinico-pathological point of view, are those devoted to sleeping sickness of the negro, amok, and latah. These are evidently included, not that the author has anything new or critical to say about them, in fact his statements anent these are almost entirely based on the observations of others, but that he may insure completeness. Considered as such, they fulfil their purpose.

In a brief notice the merits of a book, like the one under consideration, receives but inadequate mention, but when we say that, in our opinion, it contributes to the illumination of some of the most destructive and obscure diseases which afflict mankind, we shall have sufficiently manifested our desire to speak well of it.

BLIND LEADERS OF THE BLIND. A Novel, by JAMES R. COCKE, M.D. Lee & Shepard, publishers. Boston.

THIS book has no *raison d'être* whatever—neither beauty of style, nor appeal to refined emotions and sentiments, nor yet the development of a consistent story is to be found within its pages. The book is a collection of incidents, very naïvely told, loosely strung together, and appealing to a love of the morbid and pathological. It would hardly be possible for us even to enumerate the number of murders, diseases, crimes against person and properties, not to speak of the absurd diagnoses and fulsome adulation, and advertisement of false prophets in hypnotism, in which the book abounds. The public cannot be instructed by this book; it needs to be warned against statements made with a show of special knowledge on the part of a physician who has written a work on hypnotism. He indicates the possibility of a blind man, who had been suffering total blindness from before his fifth year, seeing the sun, and the moon, with its shimmer upon the water at night, by means of a magnet and the touch of his loved one, as though directing his mental gaze hither and thither in unison with the movements of her eyes. Preposterous and ridiculous as this is, it is fraught with such danger to the unthinking and unprofessional reader that the publication of such a book by a physician can be regarded in no other way than reprehensible. Of the making of books there is no end. Fortunately we are not obliged to read them all.

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ORIGINAL ARTICLES.

LEUCOCYTOSIS AND IMMUNITY, WITH A CRITICAL ANALYSIS OF THE THEORY OF NUCLEIN-THERAPY.

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THE establishment of a therapeutical system, founded upon nature's own process of protecting the living organism against disease, is one of the highest aims of scientific medicine. In the past few years, accordingly, there has been an extraordinary development in our knowledge of natural and acquired immunity. Should we ultimately realize the end of these researches, a mass of empirical formulæ will be replaced by rational and precise methods.

The theory of Asclepiades was a remarkable foreshadowing of modern cellular pathology. According to him, the body was made up of numberless atoms and pores, the disturbance of whose normal distribution and symmetry resulted in a departure from health.

But humoralism, set upon the march by Hippocrates and receiving afterward the indorsement of the great Galen, withstood all attacks, and remained paramount throughout the Middle Ages.

Virchow showed the great rôle the living cells play in the living organisms, and Metschnikoff would still farther elevate their importance and significance in the struggle of the organism against disease. But ancient humoralism again appears in the garb of modern serum-therapy.

Very recently there has been propounded by certain French authors a theory that resembles still more closely the old humoral doctrine. This is the so-called theory of "internal secretion," according to which the most diversified glands of the body contribute to the preparation of the blood, furnishing it, perhaps, with enzymes destined to neutralize poisons produced as a result of metabolic change. The secretions from any one gland, moreover, can compensate for the failure of any other.[1]

In 1892, there was waged, especially in England, a bitter warfare over phagocytism and its relation to immunity. Klein asserted that the cell constituted a retreat into which the microörganism entered to avoid the bactericidal influence of the fluids. German pathologists chiefly brought forward some powerful arguments deduced from experiments, to show that the lymph or serum possessed "antibiotic" properties.

Baumgarten[2] did most to discredit phagocytism in Germany, and brought the strongest proof to establish the serum doctrines. He claimed to have demonstrated by experiments that degeneration and disappearance of the bacilli occurred in the lymph-fluids. Buchner[3] contended that the blood-serum destroyed the bacteria, and that the leucocytes, acting as scavengers, afterward carried off the already devitalized microörganisms.

But almost immediately we began to hear that these two schools were not really irreconcilable. Sanarelli,[4] for example, in 1893, wrote:

> Le grande nombre d'arguments apportés par M. Metschnikoff et son école en faveur de cette théorie phagocytaire n'a pourtant pas empêché d'invoquer pour expliquer l'immunité vaccinale, d'autres conditions statiques consistant en des propriétés chemiques du sang et des humeurs, qui seraient en état de proteger à eux seuls l'organisme.

But Sanarelli, Massart, Werigo, Isaeff, continue to maintain that the essential factor in immunity is the phagocytic leucocyte, and deny the claim of Behring and Nissen, Foa and Carbonne, Emmerich and Fawitzky, Krouse and Pansini, that the blood of a protected animal is directly destructive of bacteria (bactericidal theory); as also the theory advocated chiefly by Charrin and Rogers, that the microörganisms were not destroyed in the serum, but only divested of their pathogenic properties (theory of attenuation); and likewise the contention of Behring and Kitasato, G. and F. Klemperer, Mosny, and more recently of a host of others, that the serum may *contain* a substance which neutralizes the toxins produced by the bacilli.

The phagocytic theory has recently been made the foundation of a new therapeutic system, the nuclein-therapy, which has a wide-spread popularity in this country. An agent, essentially the same as nuclein, had been employed by the enemies of phagocytosis, in order to combat this theory. There had been described by Wooldridge, in 1888, a new method of "chemical protection." He used a solution of what he called "tissue fibrinogen," which he prepared from the thymus and testicles of animals. Injecting this agent into

rabbits, he claimed that they were thereby rendered immune against subsequent inoculation of anthrax.

Harkin, an opponent of phagocytosis, made some study of this principle, and added the idea that it possessed bactericidal properties. Wright[8] followed closely the formula which Wooldridge had used in preparing his "fibrinogen," and studying the same chemically, demonstrated conclusively that this agent was of the nature of a nucleo-albumen or nucleo-protein. This statement was to an extent substantiated by the fact that fibrinogen introduced into the system produced leucocytosis, since there had just then been published Horbaczewski's[9] famous work, wherein it is shown that the effect of nuclein is to increase the number of white blood-corpuscles.

This property of nuclein, to cause a leucocytosis, is the fact to which the advocates of the nuclein-therapy now point as the proof of the curative powers of that agent. Upon the theory of phagocytosis it is plain, they tell us, that if you have an increase in the number of the leucocytes, the enemies of the bacteria, the system is better fortified against disease. The premises are as simple as could be wished. Let us therefore inquire thoroughly into them.

It is known that nuclein belongs to the albuminoids, a class nearly related to the proteids, in their percentage composition, in their colloid nature, and their considerable proportion of nitrogen. Nuclein is rich in phosphorus, soluble in weak alkalies, and precipitated by weak acids. True nuclein yields as a decomposition product xanthin bases, a fact first demonstrated by Kossel,[7] and is thus distinguished from the others, as para-nuclein.

Horbaczewski showed that the nuclein of spleen-pulp yielded in the presence of oxidizing agents uric acid. Administering nuclein, moreover, he obtained an increase of the uric acid in the urine of man. The uric acid thus excreted in excess of the normal was thought to be formed out of the white blood-corpuscles. Weinbrand,[8] however, has reached conclusions to the effect that the increased uric acid is in all probability formed from the xanthin bases of the nuclein, and does not depend upon a leucocytosis.

Accepting this view, we may ask whether the leucocytosis is not the result of the uric acid, for it is known that uric acid has the power to bring about such an effect. At the same time, another pertinent question is: Why may we not assume for those other agents which give rise to a leucocytosis the same therapeutical virtues that we assume for nuclein, since this action is the ground of its claims?

As long ago as 1856, Hirt[9] had seen an augmentation of the leucocytes follow the inhibition of certain "tonisirende mittel," especially tincture of myrrh.

In 1876, Binz[10] made similar observations as to ethereal oils, especially turpentine and camphor. Pohl[11] enlarged the list very materially in 1888, showing that a leucocytosis ranging from 25 to 125 per cent. was produced by the following substances: Subnitrate of bismuth, oxid of iron, acetic ether, oil of fennel, oil of cloves, oil of peppermint, tincture of myrrh, oil of turpentine, vanillin, musk, absinthe, quassia, gentian, piperin, and strychnin.

Cutler and Bradford[12] were the first to observe that the same effect followed the administration of phosphorus, cod-liver oil, and quinin. Leber[13] produced a leucocytosis by the use of phlogosin, and Haidenhain[14] had the same result with leech-extracts. That the phenomena of leucocytosis follow upon the introduction of bacterial cultures, bacterial extracts, and alkali proteins into the system, we know well enough from the experiments of Arloing,[15] Somer,[16] and many others.

Among other agents which will give rise to leucocytosis are the following: Peptone, hemialbumose, uric acid, nucleinic acid, urea, urate of soda, curare, pyrodin, chlorate of soda.

All these agents give rise to a polynuclear leucocytosis, only those white corpuscles with multiple nuclei and neutrophilic granulations being increased.

The earliest view of leucocytosis was that of Virchow, who believed it was the result of the stimulation of the lymphatic glands, these being the glands chiefly, whose function it was to produce the leucocytes. Stimulation caused increased activity in these glands, and consequently an immediate over-supply of the corpuscles.

Virchow's theory of new production was later adopted by Von Limbeck, who added, however, the principle of chemotaxis as complementary to its solution, holding that those substances introduced into the system, with the power to produce a leucocytosis, acted in virtue of certain chemotactic properties (which will be discussed later) to attract the leucocytes from the blood-making glands. Von Limbeck thought he had strengthened this theory by experiments, in which it was seen that the blood in the splenic vein contained more leucocytes than that in the splenic artery. The physiological fact cited by Ehrlich,[17] that the

blood-forming organs *sent forth into the circulation none but the mononuclear elements*, was most fatal to this doctrine. Such a fact, clearly, seemed not to permit the idea of new production, when it was known that the majority of the leucocytes in these experimentally induced leucocytoses was of the polynuclear class.

Further investigation showed that an inequality in the number of the leucocytes in the arteries and veins in favor of the latter was the usual condition. Römer's[18] theory was that a new formation of the white blood-corpuscles took place directly in the circulating blood. The substance introduced into the system and gaining entrance into the blood stimulated the corpuscles themselves, so that there resulted a division and new formation by the process of amitoses. Römer laid stress on the grouping of four to six cells, which he frequently observed in the slides of leucocytotic blood. But subsequent investigators attributed his grouping together of the leucocytes to the so-called "viscosity" (Virchow) of these elements, and the division-figures, which he claims to have so often seen, Schulz has affirmed to be merely the artificial lapping of one cell over another.

Löwitt,[19] who was the first to bring into special prominence the universally admitted fact that "the increase in the number of the leucocytes is always directly preceded by a decrease," believed this preliminary decrease of leucocytes to be the result of wholesale disintegration of those elements, and applied therefore the term "leucolysis." He distinguishes from leucolysis, "leucopenia," or a poverty of the blood in colorless corpuscles, due to a diminished supply from the blood-forming organs. The latter was distinguished not only on account of a different causation (as exposure to cold), and in its more gradual onset, but also in the fact that here the mononuclear elements, those which come directly from the hematopoietic organs, are the ones which are chiefly wanting, whereas in leucolysis, the decrease affects chiefly the polynuclear class. It is especially because of the diminution being in the mononuclear elements, that the author concludes that this leucopenia arises from a lessened supply, since, as he observes, there is no reason to suppose a one-sided destruction, which affects only that class. Yet a one-sided destruction affecting the polynuclear is what this author is obliged to assume in his hypothesis of leucolysis, and this to my mind is one of the weak points of his theory. His experiments were all upon rabbits.[20] Taking some blood from the cervical vein of this animal, he made the following count:

Whole number of leucocytes . .	13,824
Mononuclear, 52.4 per cent . .	7,243
Polynuclear, 47.6 per cent . .	6,581
Erythrocytes, 7,490,000.	
Ratio, 1–542.	

An injection of one gram peptone, made five minutes later, gave this result:

Whole number of leucocytes . .	3142
Mononuclear, 77 per cent. . .	2419
Polynuclear, 23 per cent. . .	723
Erythrocytes, 6,290,000.	
Ratio, 1–2002.	

In other instances the decrease is yet more striking on the side of the polynuclear forms. Löwitt has not himself ventured an explanation of this partiality of the destructive substance, but one of his followers, A. Schmidt, has suggested that the mononuclear cells, being the younger, are the more resistant. It seems to me more natural to infer just the reverse, and to regard the young, newly born elements as tenderer, and the ones likely to be earlier destroyed. In fact, observations on the warm stage tend to show that the polynuclear forms are indeed decidedly more active, exhibiting by far livelier and more pronounced emollient movement. All observers are agreed that the polynuclear leucocytes are preeminently the phagocytes of the blood.

As a result of his many experiments, Löwitt found that the sooner the blood was taken after the injection of an agent which gave rise to the phenomena in question, the more marked was the decrease of the leucocytes; and, moreover, the greater proportionately was the decrease of the polynuclear forms—all, of course, within the stage of leucopenia. He was able to prepare the blood for examination in five seconds after the injection.

Having first made a count with the following result:

Leucocytes	9143
Mononuclear, 64.2 per cent. . .	5869
Polynuclear, 35.8 per cent. . .	3274

he injected one gram hemialbumose into the veins. A count from the blood withdrawn *five seconds* after gave

Leucocytes	413
Polynuclear, 4.6 per cent. . .	19
Mononuclear, 95.4 per cent. . .	394

Löwitt interprets these facts thus: By the introduction of certain substances into the blood, there is brought about an *immediate* and complete destruction[21] of the leucocytes. The blood-making organs attempt forthwith to compensate for this total deprivation, and hence is accounted

for the early predominance of mononuclear elements. The few polynuclear forms to be seen at this time are due to the transformation which has taken place—in accordance with Uskow's generally accepted doctrine—from the mononuclear forms. The continuance of this process of transformation is the only way of accounting for the growing number of these, the polynuclear.

To accept Löwitt's explanation, we are obliged to assume premises which scarcely appear to me as probable, namely: That the hematopoietic organs could perceive the want and discharge, even into the most peripheral vessels, the white blood-corpuscles, and that, moreover, some of these, at least, passing through the intermediary stage (transition-forms), become perfectly matured polynuclear leucocytes, with neutrophilic granulations—all in the space of *five seconds.*

At the end of this period of leucolysis, Löwitt has observed, in common with other experimentors, that there begins a rise in the number of the white corpuscles, especially the polynuclear forms, which reaches its height in from five to seven hours after the introduction of the agent. But Löwitt is original in his interpretation of this augmentation, in that he holds "dass die Leucocytose Folge der vorausgegangenen Zerstörung von Leucocyten ist;" that, in other words, the leucolysis and leucocytosis stand in a relation to each other of cause and effect. Such a conclusion is the outcome of simple *post hoc ergo propter hoc* reasoning, the author being influenced by the invariability of the association.

Schulz[22] made certain experiments, from which he was led to believe that the decrease and increase in the blood, as shown by the count, was the result of an unlike distribution of the leucocytes. Having injected 2 cc. bacterial proteins into the right ear of a rabbit, and withdrawn the blood soon after from a vein of the other ear, the number, which previous to the injection he had found 11,100, had sunk to 3300 (stage of leucolysis?). As quickly as possible, with the help of an assistant, the blood from the internal organs was withdrawn for examination with these results: gastric vein, 21,000; renal vein, 20,000; portal vein, 27,000; hepatic vein, 18,000. There was an increase then over the normal, rather than a decrease, for the internal organs at the same time that the peripheral showed a diminution.

Experiments were also made by an English author, Bruce,[23] apparently unaware of those of Schulz, that yielded similar results, though, if anything, the inequality in the numbers of the peripheral organs was still more striking.

These experiments were accepted as conclusive by X. Rieder, than whom there exists no higher authority in hematology. He writes:[24]

> As to the origin of leucocytosis, we have upon the ground of experimental examinations no good reason to believe that it is due to an increased supply of white blood-corpuscles from the blood-making organs; still less to an increase of the same in the blood, or to an abnormal collection of wandering cells.
>
> It must be considered as more probable that the leucocytosis is based only upon an insignificant increase of the entire number of the white cells circulating in the blood, in that there occurs an abnormal distribution of the same in the different vessels, in favor of the periphery.

Among other authors who look upon an increase of the white blood-corpuscles as being not an absolute increase of the whole number, but having only a local significance we can mention Werigo,[25] Goldschier and Jacob,[26] Tschistowitsch[27] and R. F. Muller.[28]

Tschistowitsch, moreover, in order further to test the doctrine of Löwitt, made a number of varied experiments to discover whether those substances which were supposed to cause a leucolysis, would effect outside of the body a disintegration of the leucocytes, and his results were all upon the negative side. Goldschier and Jacob also made experiments that were opposed to the hypothesis of Löwitt. Among other things, they were able, by the injection of small and often repeated doses of certain substances, almost to avoid the stage of hypoleucocytosis,[29] and, nevertheless, they saw follow, upon the suspension of the injections, a very intense hyperleucocytosis.

All these authors then, though they differ among themselves, believe together that the increase of the leucocytes observed at one place is compensated for by a corresponding decrease elsewhere, and *vice versa.*

The above, it must be borne in mind, is not to be applied to that augmentation of leucocytes which occurs in leucocythemia (leucemia). Here there is a leucocytosis clearly of another kind than that artificially induced by various chemical agents, and the inflammatory and the cachectic leucocytosis, in that, instead of a predominance of the polynuclear forms seen in the last-mentioned instance, it is characterized by an excess of the mononuclear or young forms. For this reason, and because also we see in leucocythemia elements which are not to be found in normal blood, as Conneil's, Ehrlich's, and the eosinophilic myelocytes,[30] we are justified in considering the leucocytosis of this disease as really arising from a new production of elements. If this be true, we have, on account of this distinction, the more reason for regarding that other kind of leucocy-

tosis, where the neutrophilic polynuclear forms prevail, as not the result of a new production, but arising in some other way.

The question that we have now to consider then, is, what is the cause of the ordinary leucocytosis? If it be the consequence of an unequal distribution of the leucocytes, what is the determining influence?

According to my belief, the key to the whole problem is to be found in the principle known as chemotropismus, or more commonly as chemotaxis. This important principle was discovered by the botanists, Stahl and Pfeffer, in the cells of plants, where it was held by these authors to exercise an influence over cellular digestion and nutrition (therefore the term trophotropismus). Its application to the leucocytes, and especially the phagocytes, has been comprehensively studied by Massart,[31] Bordet,[32] and Gabritschewsky.[33]

Chemotaxis is a peculiar property inherent in the white corpuscles of the blood and the migratory cells, by virtue of which they are attracted toward certain chemical substances or repulsed by them; the phenomenon in the former case being designated positive, in the latter negative chemotaxis. Experiments undoubtedly show that a positive chemotaxis becomes a negative one, if the agent employed be applied in more highly concentrated state.

Römer and others early recognized that leucocytosis ought to be studied in connection with chemotaxis. But without question, the credit for the first clear statement of that connection is due to Rieder,[34] who, as long ago as 1887, at a session of the Academy of Sciences in Vienna, expressed himself in regard to the action of this principle in bringing about leucocytosis as follows:

> In the beginning, a great part of the leucocytes circulating in the blood are attracted toward the *locus læsionis*, so that a certain poverty of the circulating blood resulted; after an interval, the agent possessed of chemotactic properties—that is to say, attractive to the leucocytes—entered the blood, where it acted by virtue of those same attractive properties to cause a streaming hither of the leucocytes.

Other authors have placed a different construction on the operation of chemotaxis.

Weigert has spoken of intra- and extra-vascular chemotaxis. Goldschier and Jacob have ascribed the diminution preceding the leucocytosis to a withdrawal of the leucocytes into the capillaries.

R. F. Muller,[35] who made examinations as to this point, found in a number of instances that during the period in which there was a hypoleucocytosis in the blood as shown by the peripheral vessels, there was a veritable increase in the capillaries of the internal organs. The experiments of Borel[36] also went to show that under similar circumstances there was a marked engorgement in the capillaries of the internal organs, especially of the lungs.

The application of chemotaxis to leucocytosis was very readily accepted by the Metschnikoff school, for the existence of such a property in the leucocyte was an idea quite consistent with its phagocytic characteristics, and subservient to that function. According to the phagocytists, the poisons which entered the system collected first in the abdominal organs, lungs, liver, and spleen. The attraction of the leucocytes to these organs is, then, exactly what should be expected in order to exercise the phagocytic function. So Borel and others have seen, after injection of bacteria cultures, that many of the leucocytes collected in the internal organs contained in their interior those bacteria. One point, however, needs elucidation. Ought not we to expect that the leucocytes would, in the increase and the decrease, simply retain their normal proportion of both forms?

Only Rieder has in any way ventured an explanation on this point, in that he has remarked that perhaps the preponderance of the neutrophilic forms was due to the stagnation of the corpuscles in the vessels, where the process of maturing was allowed to proceed.

Is the explanation not, rather, to be sought in the difference in the nature of the young and the old leucocytes? The polynuclear leucocytes with neutrophilic granulations, being apparently possessed of characteristics which would lead us to expect they would the more quickly respond to chemotactic influences, and being, as hematologists assert, the forms (just as the amphophiles in the rabbit) which are intended by nature to war against germs or noxious agents, is it not natural to suppose, then, that the neutrophilic leucocytes would be those—chemotaxis being the force at work—to appear in the greatest number?

Hankin, having first added some leech-extract to a little blood in a vessel, in order to prevent coagulation, introduced a glass rod. In a little while the blood was almost free of leucocytes, but, withdrawing the rod, he found that it was covered with corpuscles to an extent perceptible to the unaided eye. He did not, however, attempt to differentiate the corpuscles.

In their studies of the action and character of the phagocyte, Everard, Demoor, and Massart[37] introduced small sacs, opened at one end and containing sterilized cultures of bacteria, into the

peritoneal cavity of animals. After some hours the sacs were withdrawn and the contents examined. The results were positive and invariable, in that the leucocytes were almost entirely of the polynuclear variety. The authors were evidently justified from such experiments in concluding that the "polynuclear leucocytes are by far more chemotactic than the others."

Thus is rendered complete the demonstration of the theory of the chemotactic origin of leucocytosis. We can as easily understand, in this light, the disappearance of the polynuclear leucocytes in the stage of hypoleucocytosis, as their reappearance in the stage of hyperleucocytosis; and the observation of Löwitt that the nearer the time of the introduction of the agent, the greater was both the diminution of all leucocytes and the proportion of polynuclear forms, is precisely what we should *a priori* expect, as the expression of greater chemotactic operation.

We must, then, set down leucocytosis as only a local condition, and those agents which give rise to a leucocytosis as agents which effect merely a determination of the white blood-corpuscles from one part of the system to another.

To return once more to the nuclein-therapy, wherein is its *rationale*, if the above view of leucocytosis be the correct one?

According to Prof. Vaughan, the chief advocate of this system of therapy, as well as his followers, if nuclein has any efficacy in the cure of tuberculosis, it is due to its power to augment the number of the white blood-corpuscles. Vaughan[38] concluded an article on "The Treatment of Tuberculosis by Yeast-nuclein" as follows:

> I am convinced, especially from my experiments on animals, that nucleinic acid, improperly used, may do harm. It acts, as I have elsewhere shown, by stimulating the organs that elaborate the polynuclear corpuscles, and these may be over-stimulated. Nucleinic acid fails to be of service unless these cell-forming organs respond. They may fail to respond on account of lowered vitality, or they may be paralyzed, as it were, by an excessive dose of stimulant. The agent is not one to be used indiscriminately. Already some physicians are supplying tubercular patients with hypodermic syringes and solutions of nucleinic acid and telling them to go ahead and treat themselves. Such practice as this may make the study of this subject result in misfortune.

As regards the observation of untoward effects proceeding from the administration of nucleinic acid, Vaughan is not alone, for Löwitt has stated that this agent proved in a "high degree poisonous" given to rabbits in amounts of 0.1 per cent. per kilo, causing quickly cardiac and respiratory failure. He is alone, however, so far as I know, in attributing to any organs of the body the function of elaborating the polynuclear leucocytes, for, as we have elsewhere remarked, modern authorities are agreed in looking upon the polynuclear cell as matured form of the mononuclear, which form of cell only is elaborated directly by the hematopoietic organ.

In another article Vaughan[39] has seen fit to lay some stress on a relationship of uric acid to nuclein. He cites those observations made in regard to an increase of uric-acid excretion after the exhibition of nuclein, and adopts the theory of its formation as a result of the leucocytosis and a disintegration of the leucocytes following.

There are, as Richter[40] points out, not only diseases accompanied by leucocytosis, without an increase of the uric-acid excretion, but also some where this substance is in excess, although no leucocytosis. In cirrhosis of the liver, which Vaughan has cited as an example of the association of uric-acid excess with leucocytosis, there is in reality not only no increase, but according to Klein and others, an abnormally low number of the colorless corpuscles. Vaughan has been equally unfortunate in his illustrations of drugs, supposed both to cause a leucocytosis and an increase of the uric acid. He names antifebrin and antipyrin as such drugs, whereas Horbacyewski[41] himself found these drugs contradictory in this regard, since according to him, although they increased the number of the leucocytes, the excretion of uric acid was diminished.

In conclusion, we shall briefly indicate what we think a fruitful field for future research, whether or not the true solution be found therein. There are good reasons for looking upon the eosinophilic leucocytes as very different and distinct from all the other white blood-corpuscles, not simply on account of their histological character, but also because of their different origin and different function. Neusser, for example, was led to think that they were produced by an irritation of the sympathetic system, and that eosinophilia was, so to speak, a secretory neurosis, in support of which theory he points to some interesting as well as confirmatory observations.

Kanthaack,[42] studying phagocytosis in the frog, after injections of anthrax, made some original observations as to the action of the eosinophiles. He noticed these cells were the first to come and apply themselves to the bacteria, though they did not take them up, the real phagocytes appearing only after an interval. He was accordingly led to believe that the eosinophiles had the function of preparing the particles for digestion, and he thought, although they were non-phagocytic, that

they performed the most important part in the struggle between the cell and microörganism. He suggested that perhaps the oxyphilic granules were of the nature of a zymogen and produced a substance of great chemical activity.

In accord with the idea that some important rôle is enacted by the eosinophile in the process of immunity, Hankin[43] has constructed his theory of the so-called "alexines," which are held to be a defensive substance to whose presence the serum owes its bactericidal property. It exists, according to Hankin, in normal life in the cells, but goes over in the lymph after death. He made certain experiments to discover if there existed a relation between the number of leucocytes and the bactericidal property of the serum, from which it was concluded that such a relation really existed, but that there was not a constant ratio. He believes that he has found by further experimentation, that the eosinophile cells were the source of the property in question, this depending upon the setting free of those cells into the fluid. The latter process, he demonstrated, took place but very slightly in a freshly produced leucocytosis, in which there was but a moderate bactericidal property; whereas it was much greater in an older leucocytosis, corresponding then to a higher degree of bactericidal activity of the serum.

The theory of the alexines or alexocytes was reviewed by Metschnikoff, and this author was disposed to make light of the rôle of the eosinophile in immunity, quoting various other authors who had attached but little importance to this cell in inflammation and infection. But it seems to us, the observation ought to carry little weight, seeing that he followed those authors who placed the normal limit of the eosinophiles at from five to ten per cent., whereas at the present day it is generally estimated to range between one and two per cent.

We had occasion in a former paper[44] to refer to the clinical fact that while measles, a disease in which the eosinophiles were scarce, was often followed by tuberculosis, marked likewise by a tendency toward a low number of those cells; scarlatina on the other hand, where eosinophilia was usually high, was notably seldom so followed.

This has suggested to us that we compare those diseases in which there occurs an augmentation of the eosinophilic leucocytes, with those which clinical experience has shown to be the least often associated with tuberculosis. The latter, that is diseases apparently antagonistic to tuberculosis, are acquired chlorosis, acquired heart lesion, primary essential asthma and emphysema, primary nephritis, uric-acid diathesis, carcinoma, and echinococcus. Leaving out the cardiac lesion and the carcinoma, everyone of these affections, strange to say, falls in the list of those marked by an increase of the eosinophiles.

This is the more remarkable because that list is not such a very comprehensive one. In addition to those indicated, eosinophilia is a feature only of leucemia, Basedow's disease, osteo-malacia, malaria, intestinal parasites and intoxication, two or three skin affections (pemphigos pellagra, and lymphoderma perniciosa), and certain functional neuroses, and pneumonia (at the crisis). May we not, if our suspicion be well founded, anticipate that further observations will show the same to be true of all affections in which there is great and constant increase of the leucocytes that contain oxyphilic granules? It is noteworthy in this connection to recall that several authors have seen that Koch's tuberculosin would give rise to an augmentation of the eosinophiles.

According to Poehl,[45] immunity is indebted to the existence in the blood and lymph, under favorable conditions, of a substance called "spermin." This is formed by a disintegration of the leucocytes, but only when this takes place in a sufficient alkalinity of the blood do we have a *soluble* spermin, in which form alone does it possess the power to afford immunity. The latter is due to a proper equilibrium in the process of tissue-change, the greater part of which consists in intraoxidation, and this condition depends upon this soluble spermin. Let it become converted into the insoluble form, which happens in a lowered alkalinity of the blood, then tissue-metabolism, and especially intraoxidation, is so interfered with that there is collected much incompletely oxidized material, accountable according to our author, for all kinds of auto-intoxication. Spermin phosphate is identical with Charcot-Leyden crystals, which were demonstrated by Goulasch to be the crystalline derivative of the eosinophilic cells.

So we again see this most recent of theories to explain immunity, though arrived at by other processes of reasoning and based on other physiological principles, amounts in the end to a quasi-substantiation of the views of Kanthaack, Hardy, and Hankin, as to the significant rôle played by the eosinophiles in protecting the organism against disease.

SUMMARY.

We may summarize briefly what has been brought out in the foregoing as follows:

1. Notwithstanding the long-continued conflict as to the importance of the cell and of the lymph

respectively, as the protecting agency of the body, it is probable the claims on each side will be found reconcilable.

2. There is no reason for regarding the leucocytosis, which appears after the introduction of nuclein into the system, as differently produced than that which follows from a great number of other agents, many of which are poisons.

3. Theories of artificially induced leucocytosis, which assume an essential new production of leucocytes by the blood-making organs, are inconsistent with the fact that the blood-making organs send forth only mononuclear cells, whereas in all these forms of leucocytosis the polynuclear are only or chiefly increased.

4. Also, Löwitt's theory of leucolysis and consequent leucocytosis fails to stand the test of experiment or of reason, in the light of known physiological principles.

5. The most rational explanation of leucocytosis is, including the invariable antecedent, leucopenia, according to the principle of chemotaxis. The predominance of polynuclear cells is thereby accounted for in the greater sensitiveness of these forms to chemotactic influences.

6. We must regard, therefore, a leucocytosis as only a local condition; that is to say, only a determination of the white cells into the peripheral circulation, without any real, significant, absolute increase of the whole number of those cells. This view is supported by a number of experiments, which showed that at the stage of leucocytosis as found in the peripheral vessels, there was a coincident decrease in the internal vessels.

7. The leucocytosis produced by nuclein is of this kind. The uric acid found in increased amount in the urine after administration of nuclein may be formed from the nuclein direct and not from the white blood-corpuscles. There is, moreover, no constant correspondence in the number of leucocytes and the amount of uric acid excreted, for there may be leucocytosis without increase of the uric acid, as there may be often an increase of uric acid without leucocytosis.

8. There is some reason for believing that, of all leucocytes, those possessed of the eosinophilic granules play the most essential rôle in protecting the organism against infectious diseases. A suggestive correspondence exists between those diseases which are distinguished by an augmentation of eosinophiles and diseases antagonistic to tuberculosis.

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[30] The last-mentioned of these three is probably the only element really pathognomonic of leucemia.

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SURGERY BEFORE THE DAYS OF ANESTHESIA.[1]

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Mr. President and Gentlemen of the Board of Trustees and Hospital Staff, Ladies and Gentlemen: A study of the condition of operative surgery before the days of anesthesia reveals on the one hand a picture of heroic boldness and masterly self-control on the part of the surgeon, and on the other a ghastly panorama, sometimes of stoic fortitude and endurance, sometimes of abject terror and humiliation—but always of agonizing wretchedness and pain—on the part of the unhappy victim, man or woman, whose necessities required a recourse to the surgeon's aid. And from our vantage-ground of a half-century's experience it is difficult for us to understand why it was not until fifty years ago to-day that the crucial experiment was made in this hospital, and that surgical anesthesia became a glorious reality.

It is somewhat difficult to obtain an accurate picture of pre-anesthetic surgery from the patient's point of view, probably for a similar reason to that indicated by the lion in the fable, when he criticized the artist for always representing a combat between lions and men as terminating in a human victory—lions do not paint. So, as operations are habitually reported by surgeons and not by patients, we read of the skill and intrepidity of the operator, of difficulties met and overcome, and of victories snatched as it were from the very jaws of impeding defeat; but we hear little of the tortures of the victim under the life-saving process, or, in an unsuccessful case, of the gradual subsidence of agonizing cries hushed in the silence of death. And yet we sometimes catch, incidentally, a side-glimpse of an operation from the patient's standpoint, and can thus form some faint notion of the shades as well as the high lights of capital surgery in days gone by.

Those who are familiar with the history of British surgery seventy years ago will recall the famous case of "Cooper *vs.* Wakley," in which the enterprising founder and proprietor of the *Lancet* was sued and mulcted, though in but nominal damages, for the report of an operation for lithotomy performed by Sir Astley Cooper's nephew, Mr. Bransby B. Cooper. The report opens with a quotation from John Bell, referring to "long and murderous operations, when the surgeon labors for an hour in extracting the stone, to the inevitable destruction of the patient," and then, having described in terms as graphic as uncomplimentary, the operator's prolonged efforts to remove the calculus, and the words which showed his own anxiety and discomposure during the process, adds: "Such were the hurried exclamations of the operator. Every now and then there was a cry of 'Hush!' which was succeeded by the stillness of death, broken only by the horrible squash, squash, of the forceps in the perineum. 'Oh! let it go—pray let it keep in!' was the constant cry of the poor man." The patient was on the table nearly an hour, and, after a night and a day of great pain, "death" adds the reporter, "ended the poor fellow's sufferings, about twenty-nine hours after the operation." The fatal result appeared to have been due to peritonitis. It is, indeed, not an unheard-of thing that a surgeon's presence of mind should fail him in a difficult operation even at the present day; but at least the patient, unconscious through the blessing of anesthesia, does not know it, and this complication is spared, to the great comfort of all concerned.

The "pitilessness" which Celsus urged as an essential trait in the operative surgeon—though Percy and Laurent declare that this pitilessness was meant to be apparent only—was, indeed, before the days of anesthesia, a feature in the surgeon's character which impressed very strongly the public generally as well as those immediately connected with the operation; and it may be feared that there are not wanting, even at this nineteenth century's end, some who would echo the comment of the younger Pliny upon the operative surgeons of his time: "They make experiments through deaths, and no head is secured from them."

It is interesting to recall that Sir James Simpson of Edinburgh, shortly after beginning his professional studies, was so affected by "seeing the terrible agony of a poor Highland woman under

[1] Delivered at the celebration of the Fiftieth Anniversary of the first administration of ether in a surgical operation, held in Massachusetts General Hospital, Boston, October 16, 1896.

amputation of the breast," that he resolved to abandon a medical career and seek other occupation; happily his intention was reconsidered, and he returned to his studies, asking himself, "Can anything be done to make operations less painful?" and, as every one knows, in less than twenty years became himself a high priest of anesthesia, and the introducer into surgical and obstetrical practice of ether's great rival, chloroform.

Not only did delicate women and tender children dread the ordeal of the surgeon's knife, but strong and brave men also recoiled from its use in horror: Buffon preferred death to relief from the agonies of calculus by the operation of lithotomy, and case after case is narrated by Monfalcon and other writers, in which men submitted themselves with the utmost calmness and fortitude to the hands of skillful operators, instantly falling into collapse after the first incision, and, without undue loss of blood, quickly succumbing to the depressing effects of simple shock and pain.

No braver or more gallant gentleman ever lived than Admiral Viscount Nelson, and after his right elbow had been shattered by a French bullet in the assault at Teneriffe, he manifested the utmost courage, refusing to be taken to the nearest ship lest the sight of his injury should alarm the wife of a fellow officer whose own fate was uncertain, and when his own ship was reached he climbed up its side without assistance, saying, "Tell the surgeon to make haste and get his instruments. I know I must lose my right arm, so the sooner it is off, the better." "He underwent the amputation," we learn from a private letter of one of his midshipmen, "with the same firmness and courage that have always marked his character." And yet so painfully was he affected by the coldness of the operator's knife, that when next going into action, at the famous battle of the Nile, he gave standing orders to his surgeons that hot water should always be kept in readiness during an engagement, so that if another operation should be required, he might at least have the poor comfort of being cut with *warm* instruments.

But the most striking picture of which I am cognizant, showing the way in which an intelligent patient looked upon a surgical operation, is to be found in a letter written to Sir James Simpson by a friend, himself a member of the medical profession, who had had the misfortune to lose a limb by amputation before the introduction of anesthesia: "I at once agreed," he says, "to submit to the operation, but asked a week to prepare for it, not with the slightest expectation that the disease would take a favorable turn in the interval, or that the anticipated horrors of the operation would become less appalling by reflection upon them, but simply because it was so probable that the operation would be followed by a fatal issue, that I wished to prepare for death and what lies beyond it, while my faculties were clear and my emotions were comparatively undisturbed. . . . The week, so slow, and yet so swift in its passage, at length came to an end, and the morning of the operation arrived. . . . The operation was a more tedious one than some which involve much greater mutilation. It necessitated cruel cutting through inflamed and morbidly sensitive parts, and could not be dispatched by a few strokes of the knife. . . . Of the agony it occasioned I shall say nothing. Suffering so great as I underwent cannot be expressed in words, and thus fortunately cannot be recalled. The particular pangs are now forgotten; but the blank whirlwind of emotion, the horror of great darkness, and the sense of desertion by God and man, bordering close upon despair, which swept through my mind and overwhelmed my heart, I can never forget, however gladly I would do so. Only the wish to save others some of my sufferings makes me deliberately recall and confess the anguish and humiliation of such personal experience; nor can I find language more sober or familiar than I have used, to express feelings which, happily for us all, are too rare as matters of general experience to have been shaped into household words. . . . During the operation, in spite of the pain it occasioned, my senses were preternaturally acute, as I have been told they generally are in patients under such circumstances. I watched all that the surgeon did with a fascinated intensity. I still recall with unwelcome vividness the spreading out of the instruments, the twisting of the tourniquet, the first incision, the fingering of the sawed bone, the sponge pressed on the flap, the tying of the blood-vessels, the stitching of the skin, and the bloody dismembered limb lying on the floor. Those are not pleasant remembrances. For a long time they haunted me, and even now they are easily resuscitated; and though they cannot bring back the suffering attending the events which gave them a place in my memory, they can occasion a suffering of their own, and be the cause of a disquiet which favors neither mental nor bodily health."

On the side of the surgeon, we find throughout the ages a constant effort to diminish the terrors of operations, and a continuous reprobation of

the distressful, not to say cruel, modes of practice adopted by preceding generations. "Who can read without a kind of horror," cries Monfalcon, "the account of those frightful operations which were then practised? And yet the time is not very far distant from ours, when they lopped off a limb by striking it violently with a heavy knife; that time when they knew neither how to stop nor how to prevent hemorrhage but by burning the part whence the blood jetted with boiling oil or the red-hot iron; that time when surgeons armed themselves at every moment with pincers, with burning cauteries, and with a thousand instruments, the representations even of which cause terror." Will it happen that on the occasion of some future anniversary, our successors will speak of our operative triumphs with the same scorn and abhorrence with which writers of the present day sometimes refer to the great deeds of our surgical forefathers?

The belief that operations might be rendered painless, and the hope that some means might be discovered by which this end should be accomplished, appear to have been present in the minds of surgeons from the earliest periods. Witness the accounts of the Memphis stone, described by Dioscorides and Pliny, which by steeping in vinegar was made to give forth the fumes of carbonic acid; and of the Mandragora, employed according to Theodoric, when mixed with other narcotics, by inhalation, and causing a sleep from which the patient could only be aroused by the fumes of vinegar; so profound was the stupor induced by this drug, that Bodin assures us that under its influence a man submitted without consciousness to a painful operation, and continued to sleep for several days thereafter.

Vigo speaks of the whole body being "brought asleep by the smelling of a sponge wherein opium is," but warns his readers that the practice is dangerous, because the use of opium is sometimes followed by gangrene. In his work on "Natural Magic," Baptista Porta speaks of a volatile drug, kept in leaden vessels, which produced sleep when applied to the nostrils, and Perrin suggests that this may actually have been ether or some other of our modern anesthetic agents.

Others endeavored to prevent the pain of operations by mechanical means. The Assyrians, Hoffman assures us, compressed the veins of the neck, apparently by tying a band around the part, before practising circumcision, and compression of the carotid arteries was suggested as an anesthetic measure in more modern times by Dr. Fleming; while still more recently, Dr. Augustus Waller has shown that insensibility may be induced by compressing the cervical vagi. Garroters have indeed clearly shown, as remarked by Simpson, that a person may readily be choked into unconsciousness, but it is not surprising that their mode of practice has not commended itself to surgeons for general adoption.

Compression of the limb by a fillet or tight ligature, before amputation, is referred to by Paré as a mode of alleviating the suffering which attends that procedure, and Benjamin Bell tells us that "in amputating limbs, patients frequently desire the tourniquet to be firmly screwed, from finding that it tends to diminish the pain of the operation." The same writer refers approvingly to the suggestion of Mr. James Moore, that pain should be controlled by the application of a screw compressor to the principal nerve of the part, but surgeons generally appear to have agreed with Monfalcon, that the inconveniences of such an apparatus fully equaled its very slight advantages.

Mental preoccupation was sometimes sought as a means of preventing pain. Richard Wiseman found that soldiers dreaded the loss of a limb much less if it was removed immediately, while they were "in the heat of the fight," than if the operation was postponed until the next day; "wherefore," he says, "cut it off quickly, while the soldier is heated and in mettle;" and Renauldin recalls the case of the amiable Dolomieu, who, exposed to the pangs of starvation in a Neapolitan dungeon, measurably alleviated his own distress by engaging in the composition of a treatise on mineralogy, while his unfortunate servant and fellow prisoner, who had not the same intellectual resources, was hungry enough for both.

But the presence of pain was not the only evil dreaded by our predecessors in attempting important operations; the great risk of fatal accident from some involuntary movement of the patient was constantly present to the mind of the conscientious surgeon. "How often," says Dr. Valentine Mott, "when operating in some deep, dark wound, along the course of some great vein, with thin walls, alternately distended and flaccid with the vital current—how often have I dreaded that some unfortunate struggle of the patient would deviate the knife a little from its proper course, and that I, who fain would be the deliverer, should involuntarily become the executioner, seeing my patient perish in my hands by the most appalling form of death! Had he been insensible, I should have felt no alarm." So

greatly was the responsibility of using the knife felt by the best-informed surgeons of pre-anesthetic days that many, like Haller, distrusted their own manual dexterity, and declined to perform operations which, while recognizing as necessary, they felt should be left to other surgeons differently constituted from themselves. Would that a little of this Hallerian diffidence might affect some tyros of the profession in our own day who, without the slightest preliminary practical training, do not hesitate to undertake the most hazardous procedures, and seem to consider themselves disgraced if they cannot count one or more abdominal sections, even if terminating fatally, within the accomplishments of their first year's practice!

Coming down to the days more immediately preceding the date of the great discovery, we find that opium and alcohol were the only agents which continued to be regarded as of practical value in diminishing the pain of operations, though the attendant disadvantages of their employment were, of course, recognized. "Previous to every painful operation," says Dorsey, "a dose of laudanum should be administered." "I was in the habit," says Dr. Mott, "of giving opiates freely before the introduction of anesthetics, both before and after operations, . . . and opium and its preparations are the only anodynes well adapted to surgical use. No substitutes are worthy of confidence." Demme tells of a woman who, under the influence of opium, submitted to amputation at the hip-joint, and emitted but a single cry; and I myself recall distinctly patients who, in the hands of that excellent surgeon, the late Dr. George W. Norris, had limbs amputated with almost no manifestation of pain when saturated previously with opium and whisky. Alcohol, pushed to the point of producing intoxication, was employed as an anesthetic by some surgeons, and Dorsey tells us that Dr. Physick, following Richerand's suggestion, used it successfully for its relaxing effect in a rebellious case of dislocated jaw, in which, on account of the patient's "extreme debility," it was not thought prudent to resort to the usual remedy—"bloodletting *ad deliquium animi*."

Meanwhile facts were accumulating, the significance of which we can now plainly recognize, but which excited no attention at the time. Sir Humphrey Davy had, in the very early days of the nineteenth century, experimented with nitrous oxid gas, afterward employed by Horace Wells, and had, in so many words, suggested its use as an anesthetic in minor operations; its power of preventing the sensation of pain was well known to many persons, and it was the custom at some of our medical schools, noticeably at the University of Pennsylvania, for students to breathe the "laughing-gas," as it was then called, for diversion. The use of ether by inhalation had been still earlier recommended by Beddoes, Pearson, and Thornton as a remedy for certain diseases of the lungs, and in 1805 your own Warren had employed it "to relieve the distress attending the last stage of pulmonary inflammation." Its intoxicating qualities when inhaled, and its power, when in sufficient concentration to produce stupefaction, had been recognized in 1839, in Pereira's well-known treatise on materia medica, and were quite familiar to American medical students; and it is no doubt possible—I certainly have no wish to deny it—that in isolated cases it may have been used as a means of relieving pain by individual practitioners, as by Dr. Long, of Athens, Ga., whom Perrin, with that happy disregard of the geography of all countries except their own, which is characteristic of French writers, calls the "Greek physician."

But yet—and yet—surgeons went on, in every country, cutting and burning, and patients went on writhing and screaming, until, on the sixteenth day of October, in the year 1846, in the Massachusetts General Hospital, Dr. John C. Warren painlessly removed a tumor from a man who had previously been etherized by Dr. William T. G. Morton, and surgical anesthesia became the priceless heritage of the civilized world.

CLINICAL MEMORANDA.

SUCCESSFUL LAPAROTOMY AND KRASKE OPERATION ON AN INFANT TWO DAYS OLD FOR IMPERFORATE RECTUM.[1]

By J. W. ELLIOT, M.D.,
OF BOSTON;
SURGEON TO THE MASSACHUSETTS GENERAL HOSPITAL.

On May 1, 1896, an infant two days old was brought to me at the Massachusetts General Hospital, with the history that it had passed no meconium since birth. The child weighed six pounds ten ounces at birth. Examination revealed a perfectly formed anus, which proved to be a blind pouch less than a quarter of an inch deep. The abdomen was distended and hard. The little finger was easily passed into the vagina, but detected no bulging of the bowel.

An incision was made from the anus to above the level of the top of the sacrum. After a few minutes' dissection, it became evident that the lower rectum was entirely absent. The posterior wall of the vagina bulged into the

[1] Reported at the American Surgical Association at Detroit, May 28, 1896.

wound, and was opened in order to inspect its upper end. The coccyx was next removed with scissors, but no portion of the rectum could be found. The lower part of the sacrum was next cut out on the left side, up to about the third foramen, making a regular Kraske operation. The finger was then pushed in just in front of the sacrum to a considerable depth, but the bowel could not be felt. The child was then turned on its back in the Trendelenburg position, and the abdomen opened in the median line. The urachus and the bladder were met lying against the abdominal wall and were avoided.

The lower bowel was found to consist of a greatly distended pouch which filled the abdomen and seemed to spread out over the whole pelvis, but not to enter it. Its distended condition prevented my pushing it down into the pelvis. A trocar was passed in through the sacral wound, and with two fingers in the abdomen to guide, it was pushed into the distended bowel. Gas escaped freely, and as soon as the bowel had collapsed, I was able to push it down in front of the sacrum until it was caught in the sacral wound, where it was opened and stitched to the skin as in a regular Kraske operation. The abdominal and perineal wounds were quickly closed with sutures.

The infant bore the operation remarkably well. Great care was taken to keep it warm. It was fed on modified milk, according to Dr. Rotche's formula.

The temperature rose to 102° F., and pulse, 140. On the fifth day the temperature was normal, and gas and feces passed freely through the artificial anus. The child gained nearly two pounds in the next three weeks, and was discharged from the hospital on the twenty-seventh day in good condition. The wounds had healed rapidly, and the opening into the rectum was large and needed no dilatation.

A letter from the parent, a doctor, three months after the operation, reported the child in excellent health, but the opening into the rectum had required dilatation.

So far as I am able to learn from the literature, the coccyx has been removed several times in searching for the bowel in cases of so-called imperforate rectum. Dr. Conant[1] appears to have been the first to do a laparotomy for the purpose of pushing the bowel down into the perineal wound.

The case here reported, I believe to be the first where a laparotomy was combined with a Kraske operation for the correction of imperforate rectum.

REPORT OF A CASE OF TYPHOID FEVER COMPLICATED BY EXTRAUTERINE PREGNANCY.

By JAMES B. HERRICK, M.D.,
of Chicago, Ill.

I DESIRE to place on record the following case, because of the rare, if not unique, combination of typhoid fever and extrauterine pregnancy.

A woman, about thirty-eight years of age, entered the Cook County Hospital, January 25, 1896, with many of the initial symptoms of typhoid fever—headaches, chilliness, anorexia, malaise, fever for several days, etc. No splenic tumor or rose-spots could, however, be made out at this time, and a diagnosis of typhoid was, therefore, reserved. This reservation was also made, because of the suspicion of a puerperal or *post-partum* septicemia. The patient told us that a few weeks before, being, as she then supposed, three months pregnant, she had taken medicine to bring on an abortion and had, as she believed, accomplished the object. For there had been a discharge of blood with some other material, that she described very indefinitely, but which she thought was the fetus. This continued for nearly three weeks, and then she suffered from the loss of appetite, the headache, the chilliness, etc., that finally induced her to come to the hospital. A fact that she reported, and which, in the light of later revelations was very significant, but to which not enough importance was attached in the making of the diagnosis, was that about this time, *i.e.*, the time of the supposed miscarriage, she had suffered severe abdominal pain, nausea, and had an attack of fainting, with some form of convulsion.

The examination gave the ordinary findings in a fever patient. In addition, there was plainly made out what was believed to be an enlarged uterus, presumably four months advanced in pregnancy. The question of its containing a live or dead fetus, secundines, or a fibroid, was discussed as well as the possibility of its being the source of infection. The absence of odor, discharge, or evidence of local uterine or peritoneal inflammation, with the many indications of typhoid, led to an expectant and non-interfering policy. This was rewarded in a few days by the appearance of rose-spots, and by such enlargement of the spleen as to make this organ plainly palpable. The diagnosis was further confirmed by an intestinal hemorrhage that proved fatal. The urine had shown on all examinations an abundance of albumin with numerous casts.

The autopsy (Drs. Hektoen and Tice) revealed healed apical tuberculosis, old pleuritis, pericarditis, endarteritis, chronic nephritis, and a ureteral anomaly. The findings, to which I call attention, were:

1. *Typhoid fever.*—Typical typhoid ulcers in ileum and colon; enlarged mesenteric glands; splenic tumor; typhoid bacilli in spleen, kidney, and heart's blood.

2. *Extrauterine pregnancy.*—The uterus was slightly increased in size and pushed to the left. Back of the uterus, occupying the middle of the pelvis and rising above its brim, was a globular mass containing a mummified fetus, placental tissue, and an old blood-clot. This mass was bound to the surrounding intestines by firm adhesions. The right tube could be traced for but half the length of the left. Apparently there had been primary right tubal pregnancy, with rupture at the time of the pain and syncope.

I have been unable to find other records of this unusual accidental complication of typhoid fever, and report the case, therefore, because of its rarity. It also teaches the lesson that it is not always wise to resort to operations—even exploratory operations—until the diagnosis is reasonably clear. It is often good practice to wait for hours or days before deciding as to the nature of an illness or the

[1] *Boston Medical and Surgical Journal*, March 24, 1892.

method of treatment proper to be employed. Had operative interference been resorted to, in this case, for the removal of a possible uterine source of infection, death would probably have resulted earlier than it did, and from the effects of the operation. The patient with typhoid and chronic nephritis would have been a poor subject for the surgeon. Had we been more skillful in recognizing the extrauterine pregnancy, the temptation would have been very strong to have looked upon the case as one of infected gestational sac, and clearly suitable for immediate operation. Fortunately, we temporized, and the death cannot be attributed to too zealous or unskilled treatment, but solely to acute anemia following intestinal hemorrhage.

MEDICAL PROGRESS.

A New Method of Diagnosis in Typhoid Fever.—In *La Presse Medicale* (July 29, 1896) WIDAN describes a method used by him as a test for the diagnosis of typhoid fever, which has not failed in eighty cases examined. The test rests upon the action of the serum of a typhoid patient upon young cultures of coli bacilli growing in bouillon. It is performed in several ways. From a finger-tip carefully sterilized by bichlorid of mercury solution and ether a small quantity of blood is drawn into a glass receptacle and allowed to clot. If a few drops of the serum (one for every ten drops of bouillon) are introduced into a young bouillon culture of coli bacilli, these will in a short time gather themselves together into little balls, sometimes visible to the naked eye and always easily noticeable by the aid of the microscope. The reaction may be evident in a few minutes, but is more marked after a few hours. It is desirable to use a culture of the bacilli only a day or so old; but if no fresh one is at hand, another method may be used. A tube of bouillon is sowed with some of the old coli bacilli culture (no fresh culture being at hand), and the typhoid serum is added in the proportion of one drop of serum to three cubic centimeters of bouillon. After twenty-four or forty-eight hours at 37° C. the same reaction described above is discernible. A control tube is recommended, the coli bacilli being omitted as the blood-serum may not be sterile.

Effect of Ether on the Blood.—The author of this paper, VON LERBER (Inaug. Diss., Basel, Schweiz. Verlagsdruck, 1896) bases his conclusions on examinations of the blood of 101 patients. One or two examinations were made before etherization, and from two to four examinations afterward.

The quantity of hemoglobin was compared in ninety-eight cases. In sixty-five cases it was the same after operation as before; nineteen times there was an increase, fourteen times a diminution, but in only two instances did this amount to ten per cent., and in these there was great loss of blood at the operation. Ether, therefore, does not affect the quantity of hemoglobin.

The red blood-cells were counted in 101 cases. In fifty-five cases they were increased, in forty-two diminished, and in four there was no change. The gain and loss were in most cases only temporary. So that it may safely be said that ether has no deleterious influence on the red blood-corpuscles. A spectroscopic examination of the urine in eighty-three cases failed to show any increase in urobilin. This is further evidence that the red blood-corpuscles were not destroyed.

In ninety-six cases the white blood-corpuscles were increased. In five they were diminished. In three of these latter the opening of abscesses (which had caused pathological leucocytosis before the operation) sufficiently explained the decrease in white corpuscles. In one case the decrease seemed due to rapidly approaching death, and in the other case the decrease was insignificant. The author concludes that etherization often occasions a marked leucocytosis.

Division of the Cervical Sympathetic in Cases of Exophthalmic Goiter.—JABOULAY (*Lyon Médical*, 1896, No. 22, p. 150) has practised division of the cervical sympathetic nerve in two cases of exophthalmic goiter, with resulting diminution in the prominence of the eyes. Both nerves must be divided, but the result is not always symmetric, as one of the nerves may be larger than the other, and thus capable of more pronounced activity. The operation is believed to be justifiable in accordance with the intensity of the symptom.

Cæsarean Section Thrice Performed on the Same Patient.—VAN DE POLL (*Centralblatt für Gynäkologie*, 1896, No. 21, p. 554) has reported the case of a woman whose first pregnancy terminated in the spontaneous delivery of a putrid fetus; the second in the instrumental delivery also of a putrid fetus. In the third labor, after the discharge of a considerable amount of amniotic fluid, the fetus was found to occupy a transverse position, an arm prolapsing. Decapitation was performed and the body of the child extracted. During the necessary manipulations it was found that the pelvic inlet was greatly contracted, but the head was expressed with some little effort. The head and the placenta were in process of putrefaction. Rigid antisepsis was observed, and the puerperium was uncomplicated. Subsequent measurement showed the pelvis to be of generally contracted, flat, rachitic type. The patient was instructed in the case of another pregnancy to present herself for Cæsarean section; and accordingly, about a year later, this operation was performed, the child living, and the only complication being a mild circumscribed peritonitis. Some 2½ years later the woman again became pregnant, and again was Cæsarean section performed, with the delivery of a living child. After an interval of seven years the woman became pregnant for the sixth time. After incision of abdominal wall and uterus a slightly asphyxiated child was delivered and resuscitated. On account of the firm adhesions between the anterior surface of the uterus and the abdominal wall it was decided to remove the uterus by the method of Porro, and a portion of the abdominal wall, which was the site of adhesions, was excised. Continuing hemorrhage from the vagina, after closure of the abdominal wound, necessitated reopening, and a small bleeding vessel was ligated. Other than a slight diarrhea the further progress of the case was uneventful.

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SATURDAY, OCTOBER 17, 1896.

SALINE INJECTIONS.

In a recent number of the *Revue de Chirurgie*, Claisse gives a study of the effects of the subcutaneous injection of saline solutions in man and the lower animals. In view of the rapidly increasing practice of combating certain diseased conditions by the injection of serums, real or artificial, a resumé of the subject is well worth a few moments' thought. The solutions most often employed are such as the following:

Sodium chlorid	7 grams
Distilled water	1000 grams

Or

Sulphate of soda, Chlorid of soda aa	7 grams
Distilled water	1000 grams

The solutions are injected at the body temperature. It has been found by experiments upon animals that there is what is known as a toxic rapidity of injection, and if this be exceeded the animal quickly dies; but it has little practical application in man, as this limit could be reached only by the greatest recklessness.

As might be expected, the most satisfactory results have been obtained in cases of exsanguination, and clinical and experimental results agree that the injected serum not only supplies in quantity the place of the blood lost, provided the hemorrhage has not been too great, but that it has a decided hemostatic action. The clinical phenomena which follow these large injections in cases of acute anemia or of shock, have deeply impressed those who have witnessed them. Patients who were blanched, cold, senseless, and almost without pulse and respiration, have shown a marked improvement before 100 grams of fluid were injected. With the continuance of the treatment, pulse and respiration became normal, the cheeks regained their color, and the eyes their brilliancy, and consciousness returned. With the injection of 1½ to 2 liters, reanimation was complete, though in several instances it was necessary to repeat the treatment once or twice.

The results of saline injections in infection are none the less interesting, although they are less clearly understood, and the treatment in such conditions has been far less satisfactory than in acute anemia. The clinical observations here have mostly rested on the results in pneumonia and cholera, and such surgical affections as septicemia after child-birth or surgical operations. In a recent article in *La Presse Médicale*, June 17, 1896, Bosc has gone into this part of the subject very thoroughly, and a typical case must here suffice.

Take a patient suffering from a severe infection—puerperal, for instance; all the organs are affected and are working badly, the temperature is about 104°; in ten minutes 1300 or 1400 grams of saline solution are injected subcutaneously. Before half of that amount has been reached, the improvement is manifest. The pulse becomes more regular, fuller and stronger; respiration is deeper and less hurried, and possibly the temperature falls a degree at the end of the injection. The patient feels better, is brighter, and possibly desires to urinate, but not any great amount.

Usually the patient now enters what is known as the *critical stage*, which comes on generally in four or five minutes, though it may be delayed to half an hour. There is a violent chill, with sensation of extreme cold, strong, rapid pulse,

and a rapidly rising temperature (104°–106° in the space of an hour). The chill is succeeded in from forty to sixty minutes by a feeling of heat, with flushed face, injected conjunctivæ, and labored respiration. Pulse and temperature are unchanged. Water makes its appearance in quantities through the pores of the skin, the kidneys, and sometimes the intestinal tract.

Three or perhaps four hours later the real improvement becomes manifest, the temperature sinks to normal—often very rapidly—and convalescence is entered upon. In severe cases the improvement is only temporary, and the injections have to be repeated in thirty-six or forty-eight hours. In still other cases the injections have little effect in staying the fatal issue.

Such, in general, are the results of subcutaneous saline injections, corresponding to intravenous ones, except that the latter produce a more marked *critical stage* and a somewhat quicker improvement. What can be said of their mode of action?

1. The mode of action in acute anemia is relatively simple. The gravity of this condition is due to the rapid fall of arterial pressure, the cardiac reflex is imperfectly excited, and the heart contracts irregularly and feebly. As soon as the vessels are filled the heart beats again with its usual force, and the anemia of the nervous centers disappears. The injections produce hemostasis in a twofold way, by exciting the contractors of the torn arterioles, and by the precipitation of hematoblasts, thereby favoring clotting of the blood.

2. In infectious cases the mode of action is still very obscure. It is not a simple mechanical one, by which bacteria and toxins are washed out through the skin, kidneys, and intestine—a "lavage of the blood," as it has been called. The quantity of fluid used is too small for that, and an actual toxiuria has not been proven. No, the action is more complicated.

In infection, all the general symptoms point to an intoxication whose effects are especially evident upon the nervous system. The rapid effect of injections can only be explained by a destruction of the toxins or an almost instantaneous increase in the resisting power of the body. But the transformation of toxins by the injection of 1200 grams of salt water is problematical, to say the least. Still it has been thought possible, by Chorrin. On the other hand, that the physiological resistance manifests a renewed and intense activity seems more likely.

Phagocytosis undoubtedly plays an important part in the protection of the tissues. It may be that the gravity of infection is due in part to an insufficient activity of the leucocytes. This in turn may be due to hypertoxicity of the blood. Perhaps the salt water reduces this toxicity by simple dilution of the blood, and conveyance to all parts the nourishment necessary for cellular activity, thus renewing the strife between the forces of infection and resistance.

This theory is based on too scanty facts, it is true, but as far as known the results of saline injections are comparable to those of the injection of antitoxic serums—*i. e.*, they produce disintoxication.

If this theory is admitted the explanation of the symptoms which follow is easy. Freed from the influence of the poison the nervous system resumes its action. The increased quantity of fluid and the better nervous action give a stronger and more regular pulse, and the kidneys and skin in consequence resume their functions, and the temperature gradually returns to normal.

The indications for the use of saline injections after profound hemorrhages are absolute, and intravenous injections are preferable to subcutaneous ones on account of their more rapid action. In serious infections (acute peritonitis, puerperal or traumatic septicemia, tetanus, eclampsia), where a temperature of 103°, or higher, shows a grave pathological condition, this method of treatment not only ought to be, but should be wisely and judiciously applied in connection with sustaining treatment.

Claisse concludes that "These large injections of saline solution ought to be employed with judgment and prudence, as a very powerful therapeutic resource." In them we possess an agent which, logical in theory, approved by experiment and clinical experience, is able to give happy results in conditions which have hitherto seemed beyond the resources of medicine.

THE JUBILEE OF ANESTHESIA.

The condition of anesthesia is such a common one that the present generations of surgeons little realize what a priceless boon to humanity its discovery was. It is well, therefore, in the celebration of the fiftieth anniversary of that event, to recall the pre-anesthesia days; and in that respect the celebration in Boston was made peculiarly interesting by the presence there of some of the prominent actors in the surgical arena of that time who were present when the first demonstration was made of the complete anesthetic powers of sulphuric ether. In this demonstration Morton was the prominent figure, and it was largely due to the power of his unalterable conviction that ether could be harmlessly taken to the extent of causing complete unconsciousness during a surgical operation that this great triumph was made possible. It is the act of Morton, therefore, that is rendered memorable by this anniversary celebration.

He it was who, in the Massachusetts General Hospital, on the 16th day of October, 1846, in the face of skepticism and an assemblage of distinguished but doubting observers, dared to administer sulphuric ether to a fellow man, to the extent of rendering him insensible to the incisions made by the surgeon's knife.

There are four claimants to the honor of the discovery of anesthesia—Dr. Long of Georgia, Dr. Wells of Hartford, Conn., and Drs. Morton and Jackson of Boston. The late Dr. Marion Sims proved beyond question that Dr. Long performed one or two minor operations with the assistance of ether, in 1842, but Long did not publish the fact nor did he make known the process to the profession in a way to cause its adoption. Dr. Wells discovered the anesthetic effect of nitrous oxid gas. To demonstrate its efficacy he submitted to the extraction of one of his own teeth while under its influence, and afterward used it for that purpose in his practice of dentistry. Dr. Jackson suggested to Morton that if nitrous oxid gas would obviate pain, sulphuric ether would do it also, but Morton proved it.

It is not to be wondered at, that the honor of a discovery fraught with such inestimable importance to the human race, and indeed to the entire animal kingdom, should be sought by everyone who had the least claim to the distinction. Every great discovery is gradually led up to by a series of experiments or preliminary discoveries. An abstract truth is of importance because of its possibilities of practical beneficial application, and to the discoverer belongs due credit, but the man who conceives of and demonstrates the practical application, and so confers the blessing on humanity, deserves the greater honor. This seems to have been the fortunate rôle that Morton played in this great discovery.

Boston has the proud distinction of being the scene of this momentous act, and the nations of the earth recognize that to America belongs the honor of giving anesthesia to the world.

THE NEW YORK LUNACY LAW.

The lunacy law which passed the New York Legislature last winter, and which has recently been put into execution, does not seem to be the "gladsome light of jurisprudence" that was expected. Its workings, and especially its shortcomings, were made the special subject of discussion by the New York Neurological Society at its meeting, October 6th; a general expression was asked for and it was given. The consensus of opinion seemed to be that the law had not only failed to accomplish what its instigators and framers promised, but that serious difficulties, in the temporary disposition of violent patients had been interposed by the long and tedious formalities of the new plan of commitment. The lack of any provision for the care of patients, subject under the previous law to the five-day commitment on the certificates of two physicians, without judicial attestation, also presents a most serious objection.

With this exception it was clear that the physician who acts as examiner in lunacy has very little grievance against the new requirements. It is true, the additional formality which the law now imposes may consume more of his time for its satisfaction than did the previous method of commitment, but he will probably require no instruction to make an additional charge to the patient for this increased service. As a matter of fact, it is the patient and the patient's

family on whom the strictures of the law, some of which we believe unnecessary, weigh too heavily. The physician is concerned only in so far as he is responsible to himself and the friends for the patient's welfare, until such time as the commitment papers can be obtained. Under the existing conditions he has only to examine the patient and certify that in his opinion the patient is insane, and if we mistake not the papers can then be handed to an attorney, who will attend to all the rest of the formality without the physician's presence, even without the latter's appearance before the judge who makes the commitment.

It was made clear by one of the speakers that in the case of the pauper insane of this city it was impossible to satisfy the requirements of the law in reference to the petitioner, for many of these patients are without family or friend to pray the court that such an examination be made, and that in reality this stipulation must either be evaded, or the work must fall upon the city examiners, of whose duty it is not a part.

There exists, therefore, the greatest urgency for the amendment of this law, to the effect that the insane may be cared for until the necessary amount of red tape is unrolled to carry them to a permanent haven. We sincerely hope that the committee, which the Neurological Society has made provision for under the adopted resolution, will leave no stone unturned in the praiseworthy efforts to secure such an amendment to the law, which shall be directly contributory to the welfare of the patient, of his neighbors, and property, during the interim between the time of certification and the commitment. Our advice is that all their energies be directed to that effort alone, and that the matter of the petitioner, of the taking of additional testimony, of appeal, etc., which the new law provides for, be disregarded. If these are defects, their consequences are not serious, and they will succumb through the process of evolution to the exigencies of circumstances.

ECHOES AND NEWS.

Dr. Peabody Better.—Dr. George L. Peabody of New York, who was stricken with a severe attack of appendicitis at Gaspé, Canada, and operated on by Dr. Shepherd of Montreal, is now convalescent.

The Brooklyn Naval Hospital.—Secretary Herbert has adopted the plan submitted in competition by Smithmeyer, the designer of the Congressional Library, for the new ward of the Brooklyn Naval Hospital.

Queen Victoria's Eyesight.—An oculist named Pagenstecker says that Queen Victoria is suffering only from the natural effect of advancing years, and has made her some new glasses with which she can read and write about as well as ever.

The Bubonic Plague at Bombay.—From October 2d to October 7th there were ninety-seven fresh cases of bubonic plague at Bombay, and there have been 276 deaths. A quarantine against Bombay has been declared at Aden and Egyptian ports.

Against Restriction of Animal Experimentation.—The American Association of Obstetricians and Gynecologists at their session in Richmond adopted a resolution protesting against the proposed legislation by Congress restricting animal experimentation in the District of Columbia.

A Newly Discovered Constituent of the Blood.—Dr. Müller of Vienna has described certain particles found in the blood under the name of hæmokonia (blood-dust). They resemble fat-globules, and the largest are $\frac{1}{25000}$ of an inch in diameter. They are motile and are unaffected by osmic acid.

No Foreign Titles for Dentists.—A dentist has been arrested and fined in Berlin for displaying upon the door of his office a plate describing him as a doctor of dentistry from an American college. The court held that it was against the law for him to use a foreign title in practice in Germany.

Hospital Sued for Alleged Negligence.—Suit has been brought against the New York Post-Graduate Medical School and Hospital to recover $25,000 damages because of the death of a woman, which her father's attorneys allege was due to gross negligence and improper treatment by the hospital surgeons and attendants.

Southern Surgical and Gynecological Association.—The ninth annual meeting of the Association will be held in Nashville, Tenn., Tuesday, Wednesday, and Thursday, November 10, 11, 12, 1896. The Nicholson House has been selected as headquarters of the Association. The program promises an interesting and instructive meeting.

Pruritus Vulvæ in the United States.—*The Medical Press* says that everyday gynecological practice in Great Britain does not reveal pruritus vulvæ as a common or intractable affection, so that an explanation of its greater incidence on the other side of the Atlantic must be sought in ethnological or climatological peculiarities, unless there are more individual reasons associated with the prevalence of a highly strung, quasi-neurotic temperament.

The New York Milk Supply.—The inspection of the milch-cows which are kept within the city limits of New

York discloses a large percentage of tuberculous animals. The tuberculin test has been applied to 308 cows, and 52 of these, or nearly 17 per cent., have been found to be diseased. In one herd of 34 cows, the milk from which was sold to about 200 families, 11 were shown to be "consumptives;" in another herd of 12 there were 8 "consumptives," and the milk had been sold to 125 customers in the northern part of the city.

Health of the U. S. Army.—Surgeon-General Sternberg in his report for the year ended June 30, 1896, says: "All the rates that are usually considered by statisticians as throwing light on the physical condition of a community have been lower than in any previous year of the recorded history of the army. The number constantly sick was 35.89 per thousand of strength, as compared with 31.19 during 1894, and 41.59 as the average annual rate of the preceding ten years. The mortality rate from all causes was 5.16 per thousand of strength, as compared with 6.69 in 1894, 7.85 for the preceding decade, and 6.33 in 1889, the year of lowest record."

Drunkenness and Unprofessional Conduct.—The Medical Board of Oregon was recently called upon to decide what constitutes unprofessional and dishonorable conduct on the part of a physician, it being a duty of the board in its legal province to revoke the license of any practising physician guilty of "moral turpitude." It was established that a physician may get drunk and indulge in loud language occasionally without his conduct being held to indicate moral turpitude. On this point the board agreed with ex-United States Senator Dolph, who appeared as counsel for the accused physician, and who held that getting drunk was only a violation of a city ordinance, and, even when frequently repeated, did not involve any inherent baseness of character.

A Double Water Supply for London.—The *Lancet*, of August 29th, refers to a recent law called the "London Sea-water Supply Act," and urges that the construction of necessary works be begun at once. The enterprise is in the hands of a private corporation, whose primary object appears to be the introduction of sea-water for bathing purposes. The *Lancet* holds that its application will not be allowed to stop there, and that the water will be used in watering the streets, a duty that is very much in arrears, and especially noticeable by American tourists—and for other sanitary purposes. The *Lancet* regrets that the proposed intake of water is only a short distance removed from the outlet of the Worthing sewerage system, and maintains that care should be taken to get a sea-water supply that shall be free from contamination by sewage. As to the use of sea-water for household sanitary purposes, all that the *Lancet* has to say is, that it seems absurd to use one and the same water supply for drinking and flushing, and points out the enormous saving in potable water—at all times now so lamentably scanty in London—if sea-water can be utilized for sanitary purposes.

Chicago's Water Supply.—Mayor Swift of Chicago has been authorized to select three eminent engineers who will report a plan for constructing intercepting sewers, whereby the sewage, now poured into the lake where it contaminates the water supply, will be diverted to the drainage canal. The percentage of increase of typhoid thus far in 1896 is 71 in excess of that in the corresponding period of 1895. This is very nearly the death-rate per 10,000 of population of the year 1889, immediately preceding the typhoid fever epidemic of 1890-'92. The present proportion of deaths from typhoid fever is 3.17 per cent. of the total from all causes. In 1889 it was only 2.67 per cent. Health Officer Reilly pointed out to the Council that the legal value of human lives sacrificed to typhoid fever in Chicago during the past twelve months amounts to $3,750,000. The actual money cost of medical treatment, etc., of the cases will easily raise the sum to $5,000,000. In Duluth suit has been brought against the city water company by a wife for the death of her husband. She alleges that impure water caused his death. If she recovers damages, Dr. Reilly asked, what precedent might not her success furnish for suits against the city of Chicago?

Chelidonium Majus in Cancer.—Dr. Denisko of the Hospital at Briansk, has, it is alleged, obtained some remarkable results in the treatment of carcinomatous tumors by means of a preparation of great celandine (*Chelidonium majus*). He prescribes from twenty-three to seventy-five grains of the extract, to be taken daily in water or peppermint water, and, in addition, injects into the substance of the tumor, near its circumference, a mixture consisting of equal parts of the extract, water, and glycerin. At each sitting fifteen drops are injected altogether in several insertions. Moreover, the surface of the tumor, when ulceration has commenced, is painted twice daily with a mixture of one or two parts of the extract and one of glycerin. The patients usually bear the internal administration of the drug well, and the outward applications cause but very little smarting. The injections, however, in addition to local smarting, cause a sensation of languor, rigors, and some pyrexia, these phenomena commencing about a quarter or half an hour after the injection. They disappear entirely before the next day. Caution is, however, necessary, and the doses have to be suited to the idiosyncrasies of the patient. In a very few days the sallow discoloration, constantly seen in the skin of cancer patients, disappears and the tumor becomes softer. After four or five days small fistulæ begin to show themselves where the needle has been inserted, and around these the tumor gradually breaks down. In from fifteen to twenty-five days there is a complete zone or line of demarkation between the healthy and the cancerous tissue, the tumor decreases to half its former size, and any neighboring glands that may have been affected return to their normal condition. It should be clearly understood that the results alleged above are those claimed by Dr. Denisko to ensue on the treatment. We wish this to be made absolutely clear because, in the case of a disease which has hitherto proved to be so intractable to treatment by drugs as has cancer, we think it is wicked to raise false hopes in the breasts of sufferers and their friends.—*London Lancet*, August 29, 1896.

CORRESPONDENCE.

A PROTEST.

To the Editor of THE MEDICAL NEWS:

SIR: My name has been recently coupled with a recommendation of a certain patented disinfectant. This has been done in the newspapers and also in some of the medical magazines. I wish hereby to protest emphatically against any such use of my name. It has been done without my knowledge or consent.

Respectfully,

B. MEADE BOLTON.

BACTERIOLOGICAL DIVISION OF THE BOARD OF HEALTH.
Philadelphia, Pa., October 6, 1896.

SPECIAL ARTICLE.

TYPHOID FEVER AT LEAGUE ISLAND NAVY YARD.

REPORT OF A SPECIAL COMMISSION OF INVESTIGATION INSTITUTED BY "THE MEDICAL NEWS."

A FEW weeks since the public of Philadelphia was surprised to read in its daily press the statements, bearing official stamp, that League Island, for some time occupied as a naval station by the United States Government, is regarded by the department as unsanitary and a menace to health. Surgeon-General Tryon of the Navy has in several reports mentioned the bad sanitary conditions at the island, and indeed it would seem, from his report to the department, dated August 31, 1896, that in his opinion typhoid fever is almost endemic there. The "Massachusetts," commissioned at League Island in the past summer, had directly afterward several cases of typhoid fever among her personnel. I copy the following extracts from the report of Surgeon Seigfried of that ship:

". . . we have this day (August 31, 1896) transferred to hospital our fifth case of typhoid fever since going into commission at League Island Navy Yard, June 10th.

". . . the 'Indiana' which ship also commissioned at League Island, and in the following few months having had sixteen cases of typhoid fever (my informant being one of her medical officers), it is apparent that this matter of infection of new ships taking place at that station should be properly characterized and abated.

". . . very palpable and general sanitary evils and nuisances are evident at League Island, and particularly its approaches in one direction, extending for several miles on a direct road to the city. These evils are not readily or soon remediable and it is impossible for the personnel, whether ashore or on liberty, to avoid wholly the dangers of the city's water supply and sewerage difficulties, not to speak of the milk and fresh vegetable supplies. Our ship left the Delaware on August 5th. I recommended that fitting out of new ships at League Island be avoided until that section can be characterized as being clean and without its present uncivilized surroundings.

"In the summer of 1890 the United States marines at League Island experienced almost an epidemic of typhoid (my informant being one of their officers), and the 'Indiana's' experience following her commissioning there only last year was deplorable."

Following this Surgeon-General Tryon made a report to the department from which I extract these statements: "Results of recent investigations just received, relating to origin of cases of typhoid appearing on vessels in the vicinity of Philadelphia, corroborate the statement contained in the report of the surgeon of the 'Massachusetts.'" "Four cases appeared on board the 'Bancroft' during this summer's cruise, and Past-Assistant Surgeon McCormick, in a carefully prepared report and after thorough inquiry into possible sources of contamination, states he thinks it more than probable that the origin of the fever in the four cases was traceable to the drinking-water in Philadelphia, the water supply of which city is from the Schuylkill River which represents the drainage from a densely populated valley." "He further states that in his opinion the fever could not have originated from causes within the ship, the hygienic condition of which has been excellent throughout the cruise. In view of these facts there is little doubt of the origin of the disease, and that it is unavoidable so long as the present conditions exist. Unless there is decided improvement in the sanitation of this locality, naval vessels should be commissioned elsewhere if practicable."

While, in the majority of instances, it is exceptionally difficult to locate definitely the precise source of infection in an outbreak of typhoid fever, it is, I believe, generally conceded that in most cases the water or food supply is at fault; that there must be some manner of conveying to the human gastro-intestinal tract the specific germ of the disease, and that the medium generally selected is the water. Given one case of typhoid fever, especially of the ambulatory variety, situated in a group of men of necessity limited to crowded quarters, and it is easy to see how this one case, even under the usual sanitary precautions, may become the starting-point of an after-coming outbreak of the disease.

Without the sympathy and coöperation of the Navy Department a scientific demonstration of the sanitary conditions existent at League Island is, of course, impossible; but in view of the great importance, from a commercial as well as from a scientific standpoint, which the subject bears, a few facts and some semi-official information upon the matter may be of interest.

From its situation at the confluence of two such great rivers as the Delaware and the Schuylkill it might readily be supposed that League Island is an alluvial deposit; but though the island has a top stratum of alluvium, as shown by borings, it is actually a part of the main land, separated only by a narrow channel, which has been greatly deepened by dredging in late years. For over 150 years before its occupancy by the United States Government the island was laid out in fine farms, upon which grew dry meadow grasses, and from which came bountiful and unfailing crops. During that time, as now, its area of about 500 acres was protected from the water of high tides by embankments of earth and stone. Some idea of the fitness of its conditions for the purposes of a navy yard may be gained from the following extract from

the report of a commission of five United States naval officers, high in rank, appointed by the President in 1867 for the purpose of investigating the island and its surroundings. The commission "entered into a thorough personal examination of League Island and bestowed its careful consideration upon the relation of all the various points and details involved to present and future wants and purposes of the Navy of the United States, and, in respect to its adaptation for all purposes whatever, this board does not hesitate to recommend with entire unanimity that League Island be held for naval purposes by the United States." In 1864, Mr. Geo. Davidson, of the United States Coast Survey, conducted an investigation and made borings at League Island, and this report to the department contains the statement that the land is high enough for good drainage, and that the island had upon it about 250 large trees, some of which he estimated by cutting to be about 150 years old. His conclusions from borings made all over the island are as follows: A surface soil averaging about 3½ feet over the entire island; this is stiff, yellowish, clayey material. Beneath this is a stratum, with an average depth of twenty-five feet, of very fine sand, laminated with dark, clayey material, and under this a stratum of course sand, gravel, and boulders. It was Mr. Davidson's opinion that with such materials no piling would be necessary for buildings of the heaviest description.

The island was accepted by the Government in 1868, but building to any extent was not begun till 1873. It was found necessary to fill in the ground to be occupied by the buildings, and accordingly this has been done as was needed, and at present the entire part of the island upon which stand the heavy shops of the yard is of made ground. Work is being carried on now toward filling in a large area at the northern part, just east of the main road. The natural advantages of the island in special adaptation for the purposes of a naval yard are very great, in that it is surrounded by a body of water which is never even brackish, and which has sufficient depth for vessels of the largest size; that it is situate near the great coal and iron centers; that it can easily get supplies of men from a great city, and that it is difficult of access to a foreign nation.

From the Report of Surgeon-General Lyon for 1893 I take the following: "The general health of the island has been fair. The water supply is insufficient and dangerous. The Back Channel water is contaminated by the sewage from Philadelphia. The houses of the officers are very unsatisfactory in winter."

With these facts in mind I visited League Island, October 8th, for the purpose of determining officially or unofficially the existing conditions as far as possible. The barracks was situated on the main land upon the bank of the Back Channel, east side of Broad street, and have as a water supply for drinking and culinary purposes rain-water, which is collected from the roofs in five large sheet-iron tanks, entirely covered except for cap-protected man-holes for the water spout and for cleaning the tanks. The tanks appeared to be in good condition and there seems to be no reason why this water should not be as good as any water collected in clean cisterns or tanks. There is a driven well at the back of the barracks, but I was assured that this water was considered unfit for use and never used. I secured two bottles of the drinking-water which I drew directly from the tank in daily use by the marines. It had a pleasant taste; was clean, sweet, and odorless. The following is the result of an analysis of the specimen for chlorin and ammonia, which shows that these exist in proportions beyond the limit of waters characterized as "impure." For the purpose of comparison I give in connection with this the proportions of the same contaminations in the waters of New York, Boston, and in the Delaware and Schuylkill Rivers, as determined by Dr. J. H. Wright of Harvard.

Results in Parts in 1,000,000.

	Chlorin.	Free Ammon.	Alb. Ammon.	
New York.....	2.31	0.008	0.095	.....
Boston	3.70	0.005	0.161	.....
Schuylkill...	4.06	0.025	0.112	.....
Delaware.....	2.40	0.031	0.130	.....
Specimen from tank at Barracks of L. I..	85.245	0.358	0.1415.	Chemically Impure.

As to the source of contamination of this water, evidently very impure, chemically, I can only form conjectures. The iron tanks, in which it is collected, are in apparently good condition, but are sunk in the ground within six inches of their tops, and may be faulty in construction, letting in contamination from the outside. Such relatively large quantities of chlorin and ammonia are, of course, only indicators of the quality of the water, of which, it would seem, a careful analysis, chemical and bacteriological, is imperative.

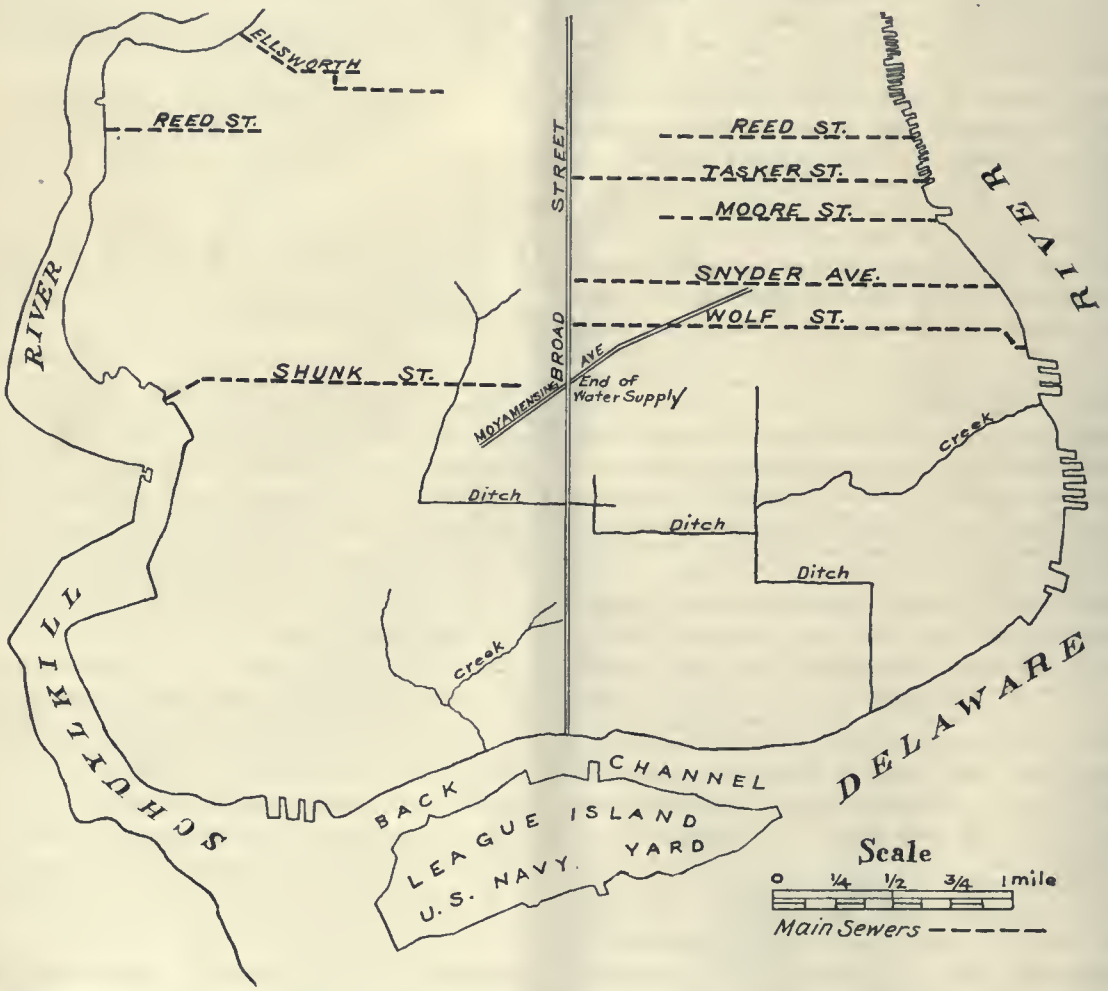
The corporal of the guard, and others of the marines, told me the drinking-water was satisfactory, and said that there was very little sickness at the barracks. About one hundred yards back of the barracks, and overhanging the water of the Back Channel, are the urinals; at this point the tides cause a swift current in the channel.

On the island, among the employés of the Navy Yard, the invariable report was that the island was healthy and that their drinking-water also—rain-water collected in large iron tanks from the roofs—was excellent. At the wharf the working men said they drank the Delaware River water on very rare occasions, while in the dry dock, when dry, a spring of water gushes through the timber flooring, but this, as one of the officers informed me, is considered to be due to the pressure of the water outside the dock, and the spring-water is of such disagreeable taste as to be unfit for drinking purposes. Upon the recruit-ship the water used for drinking and culinary purposes is condensed from the boilers. In the summer time, I was told by an officer of the ship, occasionally water was furnished this ship by a supply-boat from Philadelphia, but such water is never accepted until tested and approved by the surgeon of the ship. The drinking-water supply of ships stationed at the island is from the condensing tanks of these ships. The large

machine-shops and the houses of the Captain and Surgeon of the Yard are provided with large tanks for collecting water, as are also the few farm-houses upon the island. There are no wells upon the island, though at the present time an artesian well is being sunk, the intention being (as one of the officers informed me) to go to the depth of 800 feet. The iron staging for a large tank of the capacity of 30,000 gallons is in process of erection near the artesian well, and from this source water will be conducted to all parts of the island. There is a system of pipes running near the buildings and into these water

complement of about 350 men, officers and employés, they have little sickness on the island; that they average from ten to twelve cases of malaria in the year, while there has been only one case of typhoid fever on the island since 1890, and that the typhoid cases of the "Massachusetts" were undoubtedly imported from other ships or stations.

The accompanying map, which is drawn to scale, shows the relation of League Island to the southern portion of Philadelphia, which is called the "Neck," and is a district very sparsely populated. Here it will be noted that the city's water supply extends no farther southward



Plan of the lower portion of Philadelphia, showing sewage system of that portion of the city, the nearest point of the water supply, and the relation of these to League Island.

can be pumped from the Delaware River for fire purposes, flushing the sewers, etc. The Captain of the Yard, Ship's Surgeon, and the other officers, with whom I talked, received me very courteously, but regretted that a regulation of the Department would not permit them to discuss the question with me. However, incidentally in conversation with them I learned, in addition to the facts I have enumerated, that the island is considered to be an ideal place for the location of a naval station; that the drainage system is fairly good; that with an average

(toward League Island) than the junction of Broad street and Moyamensing avenue — a distance of over two miles from League Island—and at about this point also is the southern limit of the city's sewers, while the sewers empty into the rivers on either side at a distance above League Island very considerably greater than two miles. The large portion of the Neck is on a level below that of the high-tide mark, and is protected from inundation by embankments at the river edge. The water in the ditches and creeks rises and

falls with the tides, and though the ditch-water is often used for cooking purposes by the residents, the main source of drinking-water in this portion of the city is from tanks of rain-water.

The health of the community is remarkably good. Dr. Wm. R. Read of 1403 South Broad street has been in practice twenty-five years and attends a number of families in the southern portion of the city. He has never seen a case of malaria or typhoid in the Neck. Dr. G. H. Meezer, 1425 South Broad street, in a practice of twenty years, says he has never seen a typhoid case anywhere near League Island, while malaria is rare in that district. Dr. C. A. Usilton, Ninth and Dickenson streets, has had a large practice in lower Philadelphia since 1882, and has never seen a case of typhoid fever or malaria in the district. These three gentlemen consider it a very healthy locality, with some remarkable cases of longevity. In their belief, the cases of typhoid occurring on board the ships stationed at League Island were undoubtedly imported.

Surgeon Seigfried, in his report, makes reference to an epidemic state of typhoid at the island in 1890. Although the annual reports of the Surgeon-General of the Navy have for a number of years been most meager as to details of sanitary conditions, I find this in the report of 1890: "All navy yards and stations: Febris enterica, five cases; three sent to hospital; no death."

The report of 1893 says of League Island: "General health, fair. During June and July there was an outbreak of diarrhea at the barracks, which, however, quickly subsided. The cause was probably heat and humidity, for people living outside the yard were similarly affected." Perhaps the surgeon of the "Massachusetts" had reference to this year, instead of 1890.

In conclusion, and in absence of accurate scientific data to the contrary, I think it reasonable to believe that League Island is in a very fair condition as to health, and that if typhoid cases appeared upon the ships stationed at the island, they were brought there from some less healthy locality. One supreme drawback to the island as a naval yard or station is, I am told, its inaccessible position in relation to Philadelphia. It is about four miles from the heart of the city, and, as the "'busses" which run during the day stop at 7.00 P.M., the traveler bound for the island after that hour, whether on business or pleasure bent, must take a cab or walk.

HERBERT R. GOODRICH, M.D.

PHILADELPHIA, PA.,
October 12, 1896.

SOCIETY PROCEEDINGS.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Ninth Annual Meeting, held in Richmond, Va., September 22, 23, and 24, 1896.

FIRST DAY—MORNING SESSION.

THE Association met at the Jefferson Hotel, and was called to order at 10 A.M. by the President, DR. JOSEPH PRICE of Philadelphia.

After the usual preliminary exercises, the reading of papers was proceeded with.

JOHN M. DUFF, M.D., of Pittsburg, read a paper entitled

PELVIC DISEASES AND THEIR PRINCIPAL CAUSES; WHAT SHOULD THE LAITY BE TAUGHT CONCERNING THEM?

That at this day, through mistaken diagnosis, operations are sometimes needlessly performed, no one would have the hardihood to deny; but that such cases are as frequent as some critics say they are, he could not believe. The true pelvic surgeon was governed by nobler purposes, by more elevated aims. Conservatism in its true sense—the saving of life, relief from pain, the curing of the patient, was his watchword.

WALTER B. DORSETT, M.D., of St. Louis, followed with a paper on

DECEPTIVE SIMILARITY OF SIGNS AND SYMPTOMS OF INTRA-ABDOMINAL DISEASE, WITH CASES.

The exploratory incision should not be regarded as an evidence of ignorance, but as a legitimate means of diagnosis, and the off-hand diagnostician or the surgeon who never makes mistakes should be looked upon with at least a grain of suspicion. Three interesting cases were reported, one of which is here given:

Mrs. M., aged twenty-eight, married eight years, no pregnancies, was seen by him about a week after having recovered from an attack of malarial fever. Temperature, 99°; pulse, 90; tongue slightly coated and a tendency toward diarrhea. Complained of general abdominal tenderness. Palpation of abdomen revealed a slightly more tender spot at McBurney's point; no swelling or tumefaction could be felt. A vaginal examination revealed a retroversion with fixation; no tubal enlargement nor tenderness could be made out; no vaginal discharge. Diagnosis: Gastro-intestinal irritation, with chronic inflammation of pelvic contents. Diarrheal mixture was prescribed, and patient was told that further attendance would probably not be necessary. Four days subsequently the temperature was 99.8° F.; pulse, 100. Abdominal palpation revealed a distinctly tender spot, with some swelling, at McBurney's point. Patient stated that she had eaten heartily of Wienerwurst the day before, and had been awakened during the night by cramps at the navel. Bimanual examination was again resorted to, with negative result. Appendicitis was diagnosticated at this visit (first stage). Dram doses of salts were prescribed, and patient was urged to go to the hospital, but refused. The next day she was seen, and found sitting in a rocking-chair; and, aside from slight tenderness over abdomen, was feeling quite comfortable. Salts had acted freely. Bimanual examination again gave negative results. Temperature, 99°; pulse, 100. Patient was ordered to bed and advised to keep quiet. The case was regarded as better, and thought to be out of danger. The following day the pain became more severe, and the patient came to the hospital of her own accord. Upon examination, the right iliac fossa was found to be exceedingly tender and fluctuating. Vaginal examination revealed nothing,

aside from what was found at the previous examination. Temperature, 103; pulse, 130. Diagnosis: Ruptured appendiceal abscess. She was anesthetized and placed upon the table, and a section made in the median line. The large sac was found on the right side, filled with fluid blood and clots, and when washed out, a rent of the posterior layer of the broad ligament was found, which communicated with another rent in the Fallopian tube. Appendix appeared healthy, and was not disturbed. A thorough washing out of the sac was done and ligation of the tube, with a portion of the broad ligament. A glass drainage-tube was introduced. Notwithstanding the utmost care, the temperature remained high, pulse became worse, the abdomen became distended, and patient died on the third day. Post-operative diagnosis: Ruptured tubal pregnancy, without the usual symptoms. There was no history of shock, no cessation of menstruation, nor nervous symptoms of pregnancy. No passage of decidua, no vaginal discharge of any kind, but in its stead a good history and train of signs and symptoms of inflammatory disease of the appendix.

RUFUS B. HALL, M.D., of Cincinnati, Ohio, read a paper on

THE MOST POTENT CAUSES OF PELVIC INFLAMMATION.

He claimed that septic infection, following labor or abortion, or gonorrheal infection, was the cause in almost every instance. The most frequent cause, he believes to be gonorrheal infection conveyed to the woman from a latent gonorrhea of her husband. The more he sees of the ravages of gonorrhea, the more he is convinced of the fact that the profession is derelict in its duty to its patients in the dissemination of knowledge upon this subject. He has, on many occasions, been compelled to remove suppurating tubes and ovaries from women who had contracted the disease from husbands who believed themselves well when married. He has no hesitation in asserting that gonorrhea is more destructive to women than syphilis. No man has a right to marry until the irritating injections show the absence of gonococci in the discharge—frequently a period of two years after the beginning of acute symptoms—otherwise he will certainly infect his wife. If the profession would advocate and practise this doctrine, we would right many of the existing wrongs inflicted upon innocent women.

Dr. Hall is a firm believer in legislation upon this subject. He believes every man should have a certificate from the health officer of freedom from syphilis and gonorrhea before he is granted a marriage license. Until this is enacted, the parents of the bride should demand from the prospective groom a certificate of freedom from venereal disease, by a physician of their selection. If this could be brought about, there would be no necessity for fully one-half of the sections now made, and a corresponding amount of suffering, both mental and physical, would be obviated.

DR. J. HENRY CARSTENS of Detroit, in discussing the three preceding papers, said that when prominent ministers of churches consulted physicians and asked them to produce abortion on their wives, he became discouraged, and thought it was love's labor lost. Still, the gynecologist should keep on preaching against the evils attending the production of abortion.

Regarding Dr. Dorsett's paper, the too frequent opening of the abdomen stimulated incompetents to do likewise, and, as a consequence, results were disastrous, eventually reacting on gynecologists.

DR. W. E. B. DAVIS of Birmingham, Ala., does not believe that gonorrhea plays so important a part in the production of pelvic inflammation as was heretofore taught. Fully fifty per cent. of the cases of pelvic inflammation are due to puerperal infection, either at the time of delivery at full term, or premature delivery. More importance is being attached to tubercular trouble as a cause of pelvic inflammation than it deserves.

DR. JAMES MCFADDEN GASTON of Atlanta (by invitation) said that extreme hygienic precautions might warrant, in some instances, the use of antiseptic washes prior to labor, but nature should be allowed to take its course, unless there were ample reasons for interference.

DR. ERNEST S. LEWIS of New Orleans operated on a patient, last winter, for what he supposed at the time was a small ovarian tumor, but, after the abdomen was opened, it turned out to be a retroverted gravid uterus.

DR. F. D. THOMPSON of Fort Worth, Tex., would like the essayists to have gone more fully into the point as to when it was safe for men who had been the subjects of gonorrhea to marry and have intercourse with their wives. Many cases of gonorrhea occurred in married men, and the gynecologist had before him all the ills and consequences incident to this disease. How long shall such men abstain from sexual intercourse? These points should be dealt with more fully and explicitly.

DR. LEWIS S. MCMURTRY of Louisville considered the view enunciated by Dr. Hall as to gonorrhea and its relations to marriage impracticable. The exploratory incision for diagnostic purposes should be sufficiently large to enable the surgeon to explore thoroughly the abdominal cavity.

DR. E. F. FISH of Milwaukee recalled one case in which an exploratory operation saved the patient's life.

DR. RICHARD H. GIBBONS of New York, thought many of the cases dealt with in the papers were due to puerperal contamination, or, in some instances, to laceration of the cervix, as had been pointed out by Emmett. He believes that Noeggerath gave us the keynote to the class of infection produced by gonorrhea. Relative to diagnosticating intra-abdominal diseases, there was no particular symptom that was pathognomonic.

DR. HOWARD W. LONGYEAR of Detroit believes the teachers of the public schools should be empowered to impart the necessary knowledge regarding the dangers of gonorrhea and its consequences.

DR. GEO. BEN. JOHNSON of Richmond presented the specimen of an ovarian tumor, the first one removed under Listerism in the State of Virginia, so far as he had been able to ascertain. The patient was an unmarried woman, twenty-six years of age. The tumor was removed March 19, 1879. The tumor, with the sac and fluid contents,

weighed thirty-four pounds. The operation was performed under the spray and with the elaborate dressings recommended by Lister. The patient died, however from sepsis. In November of the same year he was consulted by Mrs. M., whom he presented to the Association, for what turned out to be an enormous unilocular ovarian tumor. Her measurements were six feet and four inches around the abdomen at the umbilicus, and three feet and two inches from the ensiform cartilage to the pubes. The contents of the tumor and the sac weighed ninety-six pounds. This operation was performed at the patient's house, with the same care as that of the previous one. Recovery.

Albert Goldspohn, M.D., of Chicago read a paper on

TUBO-OVARIAN CYSTS, WITH INTERESTING CASES.

In order to exclude a large number of ordinary tubo-ovarian conglomerates, we need to recognize the following minimum requirements in distinguishing a tubo-ovarian cyst: (1) The participation of the tube, which is easy enough from its position and connections. (2) To prove the participation of the ovary by demonstrating some ovarian tissues in the wall of the sac. (3) That their cavities are united by some opening through which the mucous membrane of the tube is continuous with the lining of the ovarian cyst or follicle. Applying this standard, the author has been compelled to exclude a number of cases that have been mentioned as such cysts, because the three points were not proven in each of the three cases. The total number of authenticated cases that the author has been able to find in literature is thirty-eight, by twenty-five different authors. His conclusions were as follows: (1) Tubo-ovarian cysts arise in consequence of a plastic inflammatory union between a Fallopian tube and the adjacent ovary, after either or both of these organs and the intervening peritoneum have experienced a non-purulent pathological change of a cystic character. The septum intervening between the two lumina disappearing in consequence of pressure-atrophy from the tension of liquid confined to one or both sides of it. (2) This union of a distended tube-cavity may occur also with that of a parovarian cyst (v. Ott), or with that of a peritoneal pseudo-cyst (Zedel). (3) In those rarer cases in which the fimbriæ are really found floating in the interior of the main cyst-cavity, we must assume either the congenital anomaly of an "ovarian tube," as was seen by Schneidemahl in a mare, as a vitium primum formationis, or that an ovarian cyst or follicle-cyst ruptured, and the abdominal end of the tube dropped into the rent and was united to its edges by inflammatory action, thus making a joint cyst and tubal cavity.

Walter B. Chase, M.D., of Brooklyn, read a paper on

MIXED TUMORS OF THE OVARY.

These tumors of the ovary may be made up of a variety of cysts, or may be a combination of cysts and solid growths. Retention-cysts of the ovary are not tumors in a technical sense, and are never large. Large ovarian cysts are most often cyst-adenomas, and are not developed from Graafian follicles, but arise from the embryonic structure. The case reported, operated upon by the author at St. John's Hospital, August 4, 1894, was a mixed tumor of the left ovary, consisting of a large cyst-adenoma, containing about two gallons of clear, straw-colored fluid, a dermoid intimately united with the cyst-adenoma, containing less than a quart of fluid, leaving true bony plates in its wall, and numerous encysted papillomas encrusted within the walls of both cysts.

(To be continued.)

SECOND INTERNATIONAL CONGRESS OF GYNECOLOGY AND OBSTETRICS.

Held at Geneva August 31 to September 5, 1896.

(Concluded.)

HYSTERECTOMY.

Dr. Paul Reynier of Paris referred to the danger of intestinal adhesions after hysterectomy, often a result, in his opinion, of septic processes. The practice of stuffing the vagina with iodoform gauze, except for hemorrhage, is a bad one, for adhesions with the intestine often result, and when the gauze is drawn out the intestinal coils are pulled into the upper vaginal orifice. If the intestine is inclined to prolapse it is better to close the peritoneal opening with suture or clamps, before introducing the gauze.

Dr. Delangeouiere of Mons presented a third series of abdominal hysterectomies for fibro-myomata. He mentioned certain improvements in technic.

The vagina and cervix are to be considered part of the operative field, and are to be sponged with iodoform gauze, and then cleaned with a one per cent. alcohol solution of bichlorid of mercury, and an aqueous solution of bichlorid of mercury of the same strength, followed by a light tampon of gauze.

For the final hemostasis, four pedicles are made corresponding to the arterial supply. A silk thread is passed through the vaginal wall, about the uterine artery. The utero-ovarian artery is included in a horizontal pedicle at the level of the vaginal reflection—just as in an oöphorectomy. The bleeding of the vaginal margin is stopped by three sutures placed in front and behind, and drawing together the cut surfaces—as a final precaution the edges of peritoneum are stitched together. Drainage is a good thing. No drain is left in place more than forty-eight hours. A frequently renewed tampon, and, later, antiseptic injections, are advisable.

VAGINAL HYSTERECTOMY IN IRREDUCIBLE INVERSION AFTER CHILDBIRTH.

Dr. Duret of Lille spoke of the difficulty of locating the incision in these cases, as the cervix is obliterated. Palpation is of some assistance. Seizing the neck of the tumor between thumb and finger, it is possible to make out by its thickness where the cervix begins, and the incision is made above this line, care being taken to avoid the contents of the infundibulum and the vessels. In fact, as soon as a transverse incision has been made anteriorly into the peritoneal cavity, it is better to complete the hysterectomy by means of a median incision. This starts from the transverse vaginal incision and splits the anterior wall of the uterus into a right and left half. The

adnexa are then easily seen, and may be ligated if desired. Next the uterus is raised and the posterior cul-de-sac transversely incised. The uterine arteries are ligated from the vagina, and the lateral ligaments are clamped. The median division of the uterus is then completed, the adnexa drawn down and ligated, and removed with the uterus.

SURGICAL TREATMENT OF RETRODEVIATIONS OF THE UTERUS.

DR. POZZI'S conclusions were as follows:

All surgical treatment whose object is to fix the uterus by attachment to a limited area of its surface can have only temporary results. Constant traction upon the point of artificial attachment will in time produce again the displacement. This explains why Alexander's operation, and vagino- and vesico-fixation, give the uterus only a temporary stability, and, besides, many of these operations ought to be rejected because they are a real source of danger in future child-bearing.

The rational treatment of excessive mobility of the uterus (movable retrodeviation) may be expressed as follows, according to individual conditions: (*a*) Cure the metritis which so often exists by curettage, amputation of the cervix, etc. (*b*) Restore the perineum, if torn, by a suitable lactic operation. (*c*) Fit the patient with a pessary which, by distending the posterior cul-de-sac, holds the cervix in position; and regulate the intra-abdominal pressure by an abdominal belt.

In fixed retrodeviation of the uterus the principal lesion is not the displacement, nor the adhesions, but the diseased condition of the uterus, tubes, and ovaries; and treatment is to be chosen accordingly.

In many cases the trouble in the adnexa is secondary to that of the uterus, and passes away if the latter is properly treated; in others, the lesions in the adnexa are primary, and the metritis secondary. In such cases laparotomy is indicated, and if the trouble is of a mild character, such as cystic disease of the ovary without occlusion of the tubes ignipuncture or partial resection of the ovary is to be performed. After adhesions are destroyed the uterus will right itself, but for safety it may be stitched to the abdominal wall. If the tubes are obliterated, and the ovaries more or less diseased, castration is the suitable operation; and by this means the symptoms, often falsely attributed to the uterine displacement, will be cured.

Vaginal hysterectomy is preferable in the presence of old bilateral lesions of the adnexa, with chronic metritis and hypertrophy of the uterus.

DR. KASTNER of Dorpat, discussing the same topic, drew the following conclusions:

The operative treatment of retroversion and retroflexion by holding the uterus in a forced anterior position prevents the formation of adhesions and ultimate prolapse, and reëstablishes, to a certain degree, the mobility of the uterus and its pelvic relations. In immobile retrodeviations massage and Schulz's operation are to be employed, and laparotomy is indicated only if very strong adhesions exist. Abdominal section is, for this purpose, more exact, and allows of a more thorough treatment than either anterior or posterior colpotomy. Abdominal, abdomino-vesical and vaginal fixation and Alexander's operation keep the uterus in a good position, which is not true of certain recently devised procedures, such as Sänger's retrofixation. Ventral and vesical fixation and Alexander's operation do not disturb the normal functions of the uterus. Vaginal fixation is not to be performed in women liable to bear children. If a tendency to prolapse exists the colporrhaphies should be combined with vaginal fixation. If adhesions are extensive laparotomy should be performed, the adhesions broken up, and the uterus fixed to the abdominal wall. If the adnexa are diseased they are to be removed in part or altogether; but the advantage here of conservatism is never to be lost sight of. Curetting, baths, and other forms of symptomatic treatment are seldom advisable. Alexander's is the best operation for mobile retrofixation and retroversion, because it most nearly restores the parts to their normal position.

Indications for operative treatment are immobile retrodeviations, or lack of success with pessaries, or a deformation of the vagina, which prevents their employment.

As prolapse is usually secondary to retroflexion or retroversion of the uterus, any operation for its relief ought to reëstablish the anterior position of the uterus. Hence the advisability of combining anterofixation of the uterus with the plastic operations designed to narrow the vagina.

DR. POLK of New York expressed himself as opposed to the fixation of the body of a retrodeviated uterus if the patient is still capable of becoming pregnant. He prefers Alexander's operation, supplemented, if need be, by shortening of the utero-sacral ligaments, through a vaginal incision. If adhesions are present, they are first to be broken up. This is also the proper treatment for a retrodeviated uterus in a patient from whom tubes and ovaries have been previously removed, and also for retrodeviation occurring after the menopause. These operations are performed as follows: The anterior vaginal vault is incised, the uterus and adnexa freed from adhesions, if such exist. The uterus is anteverted, and its fundus drawn into the vagina. A silk suture is passed about the round ligament with its peritoneal investment far enough from the uterus to permit the sutured portion to be brought easily to the attachment of the ligament at the uterus. The loop thus made is sutured together and returned to the round ligament beyond the point of reduplication. The procedure is repeated on the opposite side and the vaginal opening is closed. In order to shorten the utero-sacral ligaments, a transverse incision is made in the posterior cul-de-sac, and a silk ligature is passed through the ligament at about its middle, and then through the tissue at the junction of the vagina with the cervix. The ends of each suture are brought through into the vagina, tightly knotted, and left long until both are in position and ready for tightening. When the sutures are tightened the ligaments are doubled upon themselves, and by this means the cervix is pulled backward and upward. The cul-de-sac is closed with catgut. The drain is taken out in two weeks, but the patient must not get up for three weeks.

Dr. Péan of Paris drew these conclusions from his practice:

Mobile retrodeviations are to be treated by pessaries with a hard surface, permitting cleaning, such as aluminum has. The necessary plastic operations should precede their application.

If recent or light adhesions are present, mobility should be secured as soon as possible by medicinal means. If these fail, Sims' articulated repositor or Brandt's massage should be tried.

When the adhesions are so firm that they will not give way, the finger should be introduced into Douglas' cul-de-sac, the territory explored, and any adhesions broken up, and small tumors of the tubes or ovaries removed.

If, in spite of all care, the pains continue, in order to prevent a relapse, the uterus should be fixed anteriorly, preferably by freshening its anterior surface and that of the bladder, and suturing the two.

If the uterus is bound down so firmly that it cannot be replaced, conservative treatment is inadvisable, as the lesions are certain to have affected tubes and ovaries to such an extent that complete castration is the only allowable operation.

Dr. Jacobs of Brussels reported that he had had better results with anterior vaginal fixation than with abdominal fixation.

Dr. Kummer of Geneva reported twenty-two patients with uterine deviation, combined in several instances with prolapse of different degrees, upon whom he had performed Alexander's operation with gratifying results. Only one case relapsed.

Dr. Chaleix-Vivie has learned from the examination of a great many women who have submitted to operations for retroversion that the restoration of the uterus, if unaccompanied by other treatment, is followed by a cure in comparatively few cases; and that it is equally important, to dilate and curette in endometritis, to amputate a diseased cervix, and to restore a distorted vagina and perineum.

Dr. Otto Engstrom favors ventrofixation when surgical interference is necessary. He uses a single suture including the peritoneum and base of the uterus, removing it on the fourteenth day. This fixation becomes peritoneal and elastic, and gives the uterus almost a normal mobility.

Dr. Mangin of Marseilles summed up the treatment employed by him: the pessary in movable retrodeviations, and if it is not well borne vaginal colpohysteropexy with any necessary vaginal plastic operations. Alexander's operation and ventrofixation he reserved for patients with lax tissues. In complicated deviations he seeks to reduce the conditions to simple ones by medical treatment, and then to apply the above rules. If the adnexa are seriously involved his rule is to perform laparotomy for unilateral lesions and hysterectomy for bilateral ones.

Influence of Coccygeal Mobility upon Retrodeviation.—Coccygectomy.

Dr. Blondel of Paris insisted upon the importance of the coccyx in backward displacements. He said that abnormal mobility of this bone, resulting from traumatism, or more often from childbirth, allowed a displacement forward of the anus and vagina of an inch or more with the formation of a posterior colpocele and retrodeviation. This condition may or may not be accompanied with coccygeal pain. A very long Hodge pessary or a posterior colporrhaphy may give some relief, but if there is much pain and removal of the adnexa is not formally indicated, he counsels a coccygectomy with suture of the levator ani to the sacrum. The operation is in no wise dangerous, and if successfully accomplished it cures the retrodeviation by driving backward and upward the cervix.

Dr. Stapfer of Paris spoke of the excellent results he had obtained by massage and gymnastics, and expressed his appreciation of massage as a means of diagnosis.

Dr. Boyer of Paris claimed that massage can relieve the pain even though the uterus remain in a false position.

Dr. Chamain of Paris thought electricity was indicated in all recent movable retrodeviations, combined with appropriate hygienic and medical treatment, and preceded if need be by mechanical treatment, especially taxis. He employs the continuous current with the positive pole in the uterus, and the negative pole on the lower abdomen and large enough to reach both groins—or the faradic current with a double external electrode, one over each inguinal region, and frequently alternating the current. Static electricity is also used. In any case vigorous asepsis is observed.

The meeting of September 3d was opened with discussions on

The Best Method of Closing the Abdomen.

Dr. Granville Bantock of London finds the simple suture sufficient in the majority of cases. When the patient is very thin or very fat the peritoneum ought to be first closed by a continuous suture, and afterward the rest of the abdomen may be closed by ordinary sutures in one or two layers. For interrupted sutures he considers silkworm-gut the best; catgut for the deep sutures.

Dr. F. la Torre of Rome spoke of the frequency of hernia when the extraperitoneal method of closing the abdomen was used. A section made on the *linea alba* is often the cause of hernias. These do not generally follow when the section is made in the muscle itself; silk, catgut, silkworm-gut and silver wire are usually employed; however, the author prefers silk or catgut. The best method is that in several layers, and preference is given to a continuous suture in the peritoneum.

Dr. Byford of Chicago spoke of the imperfect coaptation and infection as causes of post-operatory hernias; he employs the following method: A certain number of buried sutures of silkworm-gut (three cm. apart) are placed in layers, comprising the muscular layer, the aponeurosis, and the peritoneum; before fastening these sutures he puts a few sutures (one cm. apart) through the entire thickness of the abdominal wall. The majority of hernias in his cases occur after several years, espe-

cially in cases where he had employed prolonged drainage. In cases of laparotomy, requiring only an incision below the umbilicus, he cuts directly in the muscle alongside of the *linea alba;* on the other hand, when the incision is to be long, and when the abdominal wall is distended and thinned by a tumor, he recommends resection of the *linea alba*.

Dr. Alban-Doran of London thought that two years must elapse before the danger of hernia is past. His sutures are about the same as those of Dr. Granville Bantock. Hernias, he said, are often due to the carelessness of the patients who do not wear their bandages for a long enough time.

Dr. Rapin of Lausanne spoke of the importance of having the suture line show as little as possible, especially in the case of young women. To obviate this he recommends horizontal incision, concave upward, three or four cm. above the symphisis pubis; this incision cuts through the skin, and the adipose tissue, as far as the aponeurosis, and fastens the upper flap with a provisional suture a little below the umbilicus. Then he makes a vertical incision (four to eight cm.) in the middle line through the aponeurosis muscles and the peritoneum. The wound is closed in three different layers. He removes the skin sutures on the third day in order to prevent any scars.

Dr. Kummer of Geneva in his experiments on animals always had more hernias in the case of *simple* sutures, than when he employed silk sutures in layers.

Dr. Jayle of Paris employes catgut for the peritoneum and muscles, and buried silk sutures for the skin, and two or three silk sutures, comprising the skin, cellular tissue, and the aponeurosis.

Dr. Vengstrom of Helsingfors passes silk sutures through the entire thickness of the abdominal wall, but before fastening them, sutures with catgut the peritoneum and the aponeurosis. He lays great stress on not fastening the sutures too tightly.

OBSTETRIC SESSION.

In the obstetric wing of the Congress reports were presented upon the relative frequency and the most common forms of pelvic narrowness in different countries.

The session of September 5th was opened by a discussion on the

TREATMENT OF ECLAMPSIA.

Dr. Charpentier of Paris emphasized the importance of examining the urine of pregnant women. If the slightest trace of albumin be found a milk diet should be ordered. This is the preventive treatment par excellence for eclampsia. In cases of edema without albuminous urine a milk diet is advantageous if not absolutely necessary. If the eclamptic patient is strong and very cyanosed, from 300 to 500 grams of blood may be taken. Then follows the administration of chloral. Chloroform inhalations will mitigate the convulsions, and injections of artificial serum will bring about diuresis. If there is no well-marked cyanosis, and the convulsions are infrequent, treatment may be restricted to chloral. If the contractions are too feeble or slow, the case must be terminated by version or forceps if the child is living; by cephalotomy, basiotripsy, or cranioclasy if the child is dead. Labor should rarely be induced. Cæsarean section and *accouchement forcé* are only to be resorted to in the most extreme cases.

Dr. F. Halbertsma of Utrecht considers active intervention necessary, when the prognosis seems extremely grave on account of complete anuria, or of the frequency and intensity of the convulsions, when there is no indication of labor, or when labor may be expected to be long and difficult, as in primiparæ and multiple pregnancies.

Dr. Veit of Leyden finds a mixed treatment gives the best results: Hasten labor prudently; rupture the membranes and deliver the patient after complete dilatation of the soft parts, give strong doses of morphin to lessen the number of convulsions, avoid oral administration of medicine to unconscious patients, produce diaphoresis by external means.

Dr. Byers of Belfort said that hypodermic injections of morphin should be administered at the onset of the convulsion. Care should be taken that fluid does not enter the lungs. Pulmonary edema is a common cause of death in eclampsia. The patient should be kept warm and purged freely. She should be given no liquid, and according as she is conscious or not between the attacks a warm or vapor bath. If labor has not begun the convulsions should be treated, care being taken not to excite the uterus to action. Chloroform should be given after labor has begun.

REVIEWS.

Food in Health and Disease. By I. Burney Yeo, M.D., F.R.C.P., Professor of Therapeutics in King's College, London. New (2d) edition. In one 12mo. volume of 592 pages, with 4 engravings. Cloth, $2.50. Lea Brothers & Co., publishers, Philadelphia and New York. 1896.

This is a very excellent handbook, divided into two very nearly equal parts; the first is devoted to "Food in Health," the second to "Food in Disease." In the first part the author takes up the various classes of food, questions of digestion and assimilation, preparation, dietaries, food for special periods, and finally the relative advantages of animal and vegetable foods. The remainder of the book is occupied with the problems of diet in different diseases and morbid conditions, not omitting the various "cures," and artificial alimentation. The three appendices contain hospital dietaries, sterilization and Pasteurization of milk, and select recipes, respectively. The importance of the subject, the industry of the author, and the usually indefinite notions of the average physician, render this contribution both a necessary and useful one. The author could well rest his reputation upon his most excellent "Manual of Medical Treatment," but he has enhanced it by his scientific and scholarly handling of the question of food. For its convenience in size, and the practical and sound advice therein contained, this should be the daily companion of the physician. Its success is assured.

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ORIGINAL ARTICLES.

SOME GLYCOSURIC DERMATOSES.[1]

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THE whole class of cutaneous eruptions, symptomatic of the presence of sugar in the urine, has been given by the French the title of *diabétides*.

If the dermatoses included under this designation were in the main pathognomonic of the underlying condition which their presence suggests, or if indeed there were sufficient characteristics to distinguish the diabetic eruptions from those of a similar nature, but of distinct etiology, the term might well take its place alongside of the syphilids, the scrofulids, the tuberculids, and the leprids.

The chief objection which I have to interpose is that many of the skin-manifestations of the sugar-disease often occur in the presence of the symptom glycosuria, which should not be confounded with the disease diabetes, and hence, as applied to these particular outbreaks, the term would be a misnomer.

It is so well known that the condition furunculosis coexists and frequently depends upon the abnormal presence of sugar in the system, that many, like myself, make it a routine practise to examine the urine in all cases showing, what we may term, the furuncular diathesis. This has, in many instances, led to the early discovery of glycosuria, and pointed out the way by which we may put an end to the otherwise persistent and obstinate complaint, *viz.*, by the reduction or possible cure of this sugar loss.

It has been claimed that in some instances, a furuncular process, having its origin in the skin, reacts upon the glycogenic functions secondarily, and is a cause rather than an effect. Whether this be so or not, we do see cases in which a glycosuria coincides with an outbreak of furuncles, and disappears when the boils cease cropping out. To my mind, both conditions here depend upon a common cause, and this cause being once removed, both manifestations naturally cease together.

[1] Read at the meeting of the American Dermatological Association, September 8, 1896.

I recall in this connection the following case, referred to me by Dr. W. T. Kudlich of Hoboken, N. J. :

Mr. C. was first seen by me on January 18, 1890. For several weeks the patient had had a succession of boils upon the back of the neck, followed by others upon the face. Upon examining the urine, I found it to contain a small percentage of sugar. The family history pointed to no instance of diabetes, but the personal history strongly suggested a cause for such a glycosuria, in that the patient consumed daily large quantities of champagne. The treatment consisted principally in withholding this and other sugar-bearing beverages and in ordering a rather restricted diet. The sulphid of calcium was given in dose of one-twentieth of a grain every two hours.

On January 27th, nine days after treatment was begun, all trace of sugar and all furuncles had disappeared. The patient remained under observation for a short time longer, on account of an erythematous eczema of the scalp and forehead, undoubtedly due to the same cause, and has since then remained free from any manifestations of the sugar-disease.

Carbuncle is another common skin-affection which should direct our attention to the urine.

I have at the present time under treatment a lady, who six years ago had a carbuncle on the back of the neck. The urine was not examined at that time, but there is a history of subsequent ill health which suggests that the disease diabetes had already begun at that time. About a year later, during an attack of grippe, the lady read of the death of the Khedive of Egypt, which was attributed to diabetes resulting from la grippe, and told her physician she felt sure that this was her own trouble. He examined a specimen of urine and found the patient's surmise well founded. This lady has always believed her diabetes originated from the grippe. I am equally convinced that it began at or before the time of the carbuncle and that, if looked for, sugar could have been found then, though undoubtedly the attack of grippe tended to aggravate certain symptoms already present.

Considering the voluminous literature upon diabetes in its many bearings, it must be granted that the *dermatoses diabeticæ* have not been exhaustively dealt with, and comparatively little is to be found concerning them in the text-books. It is for this reason chiefly that I wish to put on record a series of eruptions extending over several years, which have been of much interest to me and may help to draw attention to these conditions, and

aid in the final determination of the affections which are to be included in the class of glycosuric dermatoses. I was first asked to see the following case with a colleague, several years ago:

There was then present upon the chest and side of the neck a herpes closely resembling a zoster, but without marked neuralgic pain. The diabetes had already existed for about two years, and the lesions occupied, according to the patient's statement, the same locations upon which a year before there had been a number of water-blisters caused by rubbing the chest with strong ammonia. The herpetic lesions soon healed under mild treatment. About two years later the family physician having died, the patient came under my own care, and for the past three years has been seen at irregular intervals and has observed the prescribed diet and regimen with irregular persistency. The urine has contained from two to six per cent. of sugar and has had a specific gravity which varies but little from 1032.

Three years ago, when I was asked to prescribe for her, there were present upon the scalp, extensor surfaces of the arms, wrists, backs of hands, thighs, legs, and backs of feet, rounded lesions, which were, according to the patient's statement, irritable rather than itchy. As they had existed for some time, many had changed in appearance by the more or less constant picking and scratching, to which they had been subjected. The eruption, as a whole, much more closely resembled some cases of acne cachecticorum, which I had seen, than it did acne necrotica. These lesions were much more obstinate than those of acne varioliformis, but with a vigorously enforced diet and treatment directed toward the diabetes, including the use of codein, gave way after a time to the local use of ammoniated mercury ointment, which is usually so promptly efficacious in acne varioliformis. Other local antiseptic and reduction agents, such as resorcin, were occasionally employed. Such necrotic lesions, as above indicated, have continued to occur from time to time, until the body is covered with rounded, depressed, atrophic, whitish cicatrices of irregular size. New lesions are prone to develop just at the margin of some of these scars, so that the latter are becoming more and more elongated from the impinging of the new scars upon the old.

In September, 1893, at a time when the percentage of sugar was high as a result of certain liberties at table, the lady was seized with what I can best characterize as acute multiple gangrene of the skin. When I saw the lesions, which were for the most part upon the arms and legs, the epidermic slough had separated in some, while adhering in others as a grayish- or greenish-black, dry eschar, attached in its central part and loose about the edges. The ulcerated surface, which was very superficial, continued to extend at the periphery until some lesions attained the size of a quarter-dollar silver piece, rather oblong or oval, than round. The surface had either a thin diphtheritic-like covering, or was grayish-yellow, some with the red points of the papillæ showing through. The appearance of the lesions was almost identical with that of a case of acute multiple gangrene in an hysterical girl which I treated in 1890. In the latter case, however, the largest lesions reached a diameter of three or four inches, and left dollar-sized keloidal scars.

A strict diet was enforced and moderately large doses of codein were given. Improvement took place rather slowly, the patient keeping her bed for about a fortnight.

The separate lesions were painted with benzoin in collodion, or aristol in collodion after the surface was freely dusted with aristol powder.

At the present time, while the smaller lesions simulating acne necrotica continue to appear at times upon the scalp and elsewhere, there are dark-brown pigment-marks at the site of many of the preceding gangrenous lesions, while surrounding many of the rounded pits, left by the necrotic lesions, is a pigmented areola or halo.

The appearance of the whole body at first glance is, in a slight measure, suggestive of leprosy, and without going carefully into the history, it would not be astonishing if one made a diagnosis of syphilis. There is one peculiarity of these pigmented areas to which I desire especially to call attention, and that is the marked growth of strong, dark hairs, limited abruptly to the patch in which pigment has been deposited. While much more noticeable in the irregular-sized patches corresponding to the preceding dermatitis gangrenosa, the same thing is seen to a lesser degree in the pigmented rings surrounding the cicatrices, due to the necrotic dermatitis, and which are themselves pigment-free. Upon the backs of the wrists and forearms, the contrast between these hair-bearing pigment-areas and the whiteness of the surrounding skin suggests vitiligo. The resemblance is, however, due more to an optical delusion than to reality. And this brings me to speak of bronzing of the skin in diabetics as a condition *per se*, and not secondary to other lesions.

This melanodermia is usually seen in cases of progressive cachexia, which run a comparatively short course. The urine does not seem to differ in general characteristics, or in its sugar-contents, from that of non-pigmented cases, and Dr. Auscher failed in his attempt to discover that it contained pigment. Many of the symptoms are severe, and dyspeptic manifestations with dryness of the tongue and inflammation of the jaws are apt to be much more pronounced than in ordinary cases. Here there is no suggestion of vitiligo, but, on

the contrary, the skin is uniformly darkened, showing however more especially upon the exposed surfaces and about the genitals. Dr. Dutournier[1] likens the color to a leaden hue, or blackish-gray, with a certain metallic luster. The period at which this cutaneous pigmentation appears is ill-defined, coming on, as it does, in a slow and gradual manner. Toward the final stages of the disease, according to Dr. Dutournier, it may either become more marked on the sites of predilection mentioned, or, on the contrary, it disappears to make place for a grayish color resembling that of the skin of uncleanly individuals. Until recently it was held that in the bronzing of diabetics the mucous surfaces escaped, and that pigmentations in the mouth pointed rather to the disease of Addison. Professor Mossé, however, in 1894,[2] demonstrated faint pigmentations upon the inner surfaces of the cheek and lip of a diabetic subject.

Aside from Addison's disease, we have to distinguish diabetic pigmentation from that caused by the prolonged use of silver and arsenic, as well as from that which is consecutive to prolonged cutaneous irritation, such as one sees in inveterate phthiriasis, and from certain atypical instances of icterus.

Erysipelas, which is among the more unusual dermatological complications of diabetes, may be the means of hastening the fatal termination as illustrated by a case brought into my service at the City Hospital, on February 19, 1894.

The patient was a man of forty-four years, who weighed 350 pounds, and had been transferred from one of the hospitals in the city. Presumably because of a history of specific infection, dating back some twenty years, and possibly from the supposed specific nature of the lesions which were present at the time upon the skin surface, he was admitted to the syphilitic ward. Here it was discovered that the urine contained a very high percentage of sugar, being virtually "loaded with sugar," as the history recorded it—a discovery which, so far as we could judge, had not been made before. One month previous to admission the patient went through an attack of erysipelas, to which he attributed his present condition. Ten days before entering the hospital, and some time after the erysipelatous process had ceased to manifest its presence, abscesses began to develop upon the back and arms. These lesions became very painful, and caused extensive destruction of tissue, so that a probe could be passed five inches into the fatty tissues of the back, perpendicularly to the surface. An antidiabetic regimen was ordered and appropriate local dressings were made, but the already advanced sloughing of tissue became daily greater and the patient's condition more alarming, new abscesses forming rapidly on various regions of the cutaneous surface. On or about March 10th the erysipelas recurred, spreading rapidly from one region to another, until the face and head became involved. On March 14th, coma developed, and in this state the patient died on the following day, less than a month from the date of his admission. Such a history teaches us among other things, that syphilis may be followed by glycosuria. Cases have been reported by Dr. E. D. Fisher of this city, in which diabetic symptoms followed syphilis, and disappeared under antisyphilitic treatment.[1]

Dr. Feinberg[2] has made similar observations. Personally, I do not recall a case developing sufficiently near the time of infection to make syphilis a positive etiological factor, though I have seen diabetes insipidus follow in the train of syphilitic manifestations, and have now such a case under observation. While gangrenous and sloughing tissues may, by absorption from the products of disintegration, give rise to glycosuria and multiple abscess, I doubt whether this was the case in the instance just described, not only from the rapidly fatal ending, but because we know how prone diabetes is to attack such extremely obese subjects.

Nail-affections occur with comparative frequency in diabetes, just as they do in syphilis and leprosy. Paronychias are quite common in their acute suppurative form. Small pus-collections develop along the lateral margins or in the nail-fold, and extend beneath the nail-body, unless they are opened and treated early. These may occur in any stage, but often indicate a high percentage of sugar, especially when one finger after another becomes affected. Spontaneous hemorrhage may take place beneath the nail, perhaps raising it from its bed and ultimately resulting in its being cast off.

Following suppurative inflammation in the nail-region, papillomatous growths of a wart-like nature may occur. Kaposi speaks of warty protuberances following ulcerative lesions of the skin. The term *papillomatosis diabetica* which he employs is, I think, a good one, directing attention, as it does, to this tendency in some cases.

Zoster was thought by Vergely[3] to be frequently caused by diabetes. Aside from the case I have briefly referred to, I have no personal experience to offer, but in this connection Hardaway's case of zoster-like xanthoma, in which sugar was present, is interesting.

[1] *Revue Internationale de Méd. et de Chir.*, March 10, 1896.
[2] Comptes rendus du Congrès de Lyon.

[1] *The Journal of Nervous and Mental Diseases*, July, 1892.
[2] *Berliner klin. Wochensch.*, No. 6, 1892.
[3] *Le Progrès Médicale*, September 26, 1891.

Pruritus, and especially pruritus vulvæ, has claimed more attention than any other skin-affection connected with diabetes, because of its almost constant occurrence at some stage of the disease, and particularly because of its severity and the slight effect of usual antipruritics, unless the cause is discovered and the disease itself is attacked with vigorous remedies.

Undoubtedly the fungus (*Saccharomyces cerevisiæ*) deposited from the voided urine about the prepuce in the male and the labia in the female, produces by a local irritant action not only a pruritus of these parts, but dermatitis and eczema, which may lead to gangrene. Hence cleanliness and bathing after each urination are advisable. Once a raw surface is established, it would seem that we need no longer invoke the local deposit of sugar from the urine to account for persistent itchiness, since it has been shown by Vergely that in 190 cubic centimeters of fluid collected from the surface of an ulcer, situated upon an edematous limb, 2.25 grams of sugar were present.

In treating these cases it is found that a lotion which acts in a satisfactory manner in one case fails in another. I have seen diluted listerin stop the distressing pruritus after carbolic and menthol solutions and various ointments had produced little effect. Solutions of peroxid of hydrogen, permanganate of potash, hyposulphite of soda, etc., act well in certain cases. In others the physician must himself apply solutions of nitrate of silver or strong solutions of permanganate. The itching may extend into the vagina, in which case the hyposulphate solution (℥ss to Oj) or permanganate (gr. xv to Oj) may be injected. Lotio nigra does well in some instances, while in others distilled extract of hamamelis is all that is required. What I have said in speaking of boils and multiple abscesses I can repeat for pruritus pudendi. Let it always lead you to examine for sugar quite as much as would a high specific gravity of the urine. Eczema and psoriasis occurring in diabetics are usually only incidental, still I am convinced that certain eczemas develop solely because of the glycemia. An acutely developing moist eczema of the lower extremities in stout individuals has led me more than once to suspect glycosuria, which was confirmed on testing. While pruritus, as I have said, is the most likely of all cutaneous complications to occur, xanthoma diabeticorum is the dermatosis most intimately associated in our minds with the disease, although up to 1893 but thirteen cases had been put on record, which have since been increased to thirty. Some observers maintain that the condition is not a xanthoma at all, and the term lichen diabeticus has been applied to it. It surely does not seem to bear a very close clinical relationship to the xanthoma usually seen about the eyelids, occurring as the former does, acutely over a large extent of surface and, perhaps, disappearing spontaneously after a brief period which the latter is never known to do. The lesions are papular or tubercular, less yellow, firmer, inflammatory, and occasion subjective symptoms. That it resembles but slightly xanthoma planum is shown by the fact that Dr. Robinson's case, which so far as I can remember was the only one observed in this country up to that time (1889), was originally presented at the New York Dermatological Society as a case of fibroma cutis.

A most interesting and instructive case, in this connection, is that depicted and described in the "Pictorial Atlas of Skin Diseases," now being published from the models in the St. Louis Hospital of Paris. The case belonged to Dr. Darier, and showed abundant lesions of xanthoma planum and tuberosum in a glycosuric, ictric, and obese subject.

Here, alongside of such lesions as all are familiar with in ordinary xanthoma, there occurred papular and tubercular lesions, corresponding in clinical features to those of so-called xanthoma diabeticum.

In our present lack of knowledge not only concerning the pathogeny of diabetes, but likewise in regard to the connection between hepatic diseases and the occurrence of xanthoma, the present instance which is unique, so far as I know, of a combination of all the features going to make up two hitherto distinct, but in many regards similar, conditions, is, it seems to me, of the greatest interest and importance.

Besides the dermatoses above mentioned, we find, occasionally, in diabetes, malum perforans pedis, deep or perforating ulceration of the plantar surface of the ball of the foot or toe, chronic urticaria, pityriasis rubra (case reported by Horden, *Lancet*, vol. ii, p. 1056, 1893), and others.

The skin in diabetes is habitually dry. I have one patient who complains very much of burning of the footsoles. The skin, too, would seem to be peculiarly vulnerable, healing badly after injury, showing a tendency to sloughing and eschar-formation. It is also apparently in a more or less constant state of receptivity for pus-producing organisms, all of which may be explained by the presence of sugar in the tissues which is possibly excreted by the cutaneous glands. A feature of excoriated or superficially ulcerated lesions is that

they become quickly glazed over or covered with a coating within a remarkably short time, and still show but little tendency to spontaneous healing.

Another noticeable peculiarity is the central necrosis or central gangrene common to many lesions, and, as shown in one of the cases I have reported, there is a tendency to persistent recurrence of lesions at the margin of the scars left by former ones.

While I have not attempted to treat the subject exhaustively, I think enough has been said to indicate my belief that glycosuria, as a symptom of a variety of conditions originating in different parts of the body and still far from being understood, may be attended with a great variety of cutaneous manifestations; that while these dermatoses are at times almost sufficient of themselves to lead to the diagnosis of the presence of sugar in the urine, we know as yet of but few which are sufficiently pathognomonic or peculiar to the disease diabetes to warrant our making of them a class to be called diabetids; that if such a class is to be established, the diabetic pigmentation, the dermatitis gangrenosa, and dermatitis necrotica diabeticorum, of which I have related instances, should find a place in it alongside of xanthoma diabeticorum.

LATENT MASTOID DISEASE.[1]

By EDWARD FRIDENBERG, M.D.,
of New York.

In the great majority of cases the diagnosis of mastoid disease is made without much difficulty; pain, tenderness on pressure, redness and swelling of the integuments, fever and prolapse of the posterior-superior wall of the auditory canal are the leading symptoms in acute cases, while persistence of fistulous tracts, or recurrent edema, characterize those of a more chronic nature. Yet there are not a few instances in which extensive mastoid disease is overlooked, or not even suspected, owing to the entire absence of symptoms, either local or constitutional.

To illustrate some of the forms of what may be properly termed "latent mastoid disease," I shall briefly narrate a few typical cases of the large number I have seen and treated:

Case I.—K. C., a girl of nineteen, was admitted to the German Hospital on August 30, 1891. A year previously, after a severe cold in the head, she had pain in the left ear, followed by discharge, at first bloody and serous; later, purulent. Pain soon disappeared. The discharge persisted for a time, and then ceased. Since then there has been occasional discharge, at no time very profuse, at no time foul-smelling. Hearing, however, has diminished considerably, and later a feeling of pressure was noticed in the ear, for which symptoms the patient sought relief. Patient was a healthy, well-nourished girl; family history and antecedents good. The right ear was normal. In the left ear the hearing was: Ordinary voice, 1 meter; whispering voice, 2 meters; watch, .03 of a meter; Rinné negative; bone-conduction to the left. Inspection showed auditory canal blocked by large polypus; mastoid region normal in all respects. Examination of heart, urine, and lungs was negative.

After thorough cocainization of the polypus, it was removed by the snare. Hemorrhage was free, but was easily controlled. Warm antiseptic irrigations were ordered three times a day. On the following day, violent inflammation of the mastoid had set in, with much swelling and redness of the integuments, and a temperature of 102½°. An ice-bag having been used for about forty-eight hours, without any improvement in the patient's condition, operation was determined upon. On September 2d the mastoid was opened. The periosteum was found slightly thickened and much inflamed; the lateral wall of the mastoid, a mere shell—at most 2 millimeters in thickness; the cells entirely broken down, forming a large cavity with carious walls, filled with pus and granulation-tissue, communicating freely with the antrum and middle ear.

Here was a case in which carious destruction had been going on within the mastoid, probably since the attack of acute middle-ear suppuration one year ago—certainly for several months. At no time had there been symptoms pointing to implication of the cells, and two days before the operation a careful examination had failed to detect anything abnormal about the process. The patient recovered promptly.

Case II.—E. J., man, forty years of age, was referred to me for a persistent suppuration of the right middle ear, which had resisted routine treatment at the hands of his family physician for five weeks. At the onset of the acute middle-ear suppuration there had been slight pain and tenderness over the mastoid, but not more than is usually found in acute otitis media suppurativa. These symptoms disappeared under the use of hot poultices and syringing with hot boric-acid solution. The examination revealed nothing of importance, excepting an unusually profuse, non-odorous, purulent discharge, the pus being of a light yellow hue, and perhaps a little thinner than is usual. For six weeks the most varied treatment was resorted to: Constant syringing with warm aseptic saline solutions; peroxid of hydrogen, astringent and antiseptic instillations; washing out through the Eustachian tube. All failed

[1] Read at the twelfth annual meeting of the Fifth District Branch of the New York State Medical Association, held in Brooklyn on May 26, 1896.

to reduce the amount or alter the character of the discharge. In spite of the absence of the usual symptoms relied upon for the diagnosis of mastoid trouble, I came to the conclusion that such an amount of pus could not be secreted by so small a cavity as the cavum tympani and that we had to deal with an empyema of the mastoid process. With some difficulty the patient was induced to submit to an operation, which revealed a condition very similar to, but even more pronounced than, the one noted in our first case, viz.: Extremely thin-walled mastoid; an enormous cavity, which had already destroyed the median wall of the process, for, upon attempting to remove the last vestiges of granulation-tissue with a sharp spoon, a sudden, extremely profuse flow of dark venous blood alarmed the operator and almost jeopardized the life of the patient. In an instant many ounces of blood were lost. As soon as the danger was realized, the index finger was pressed upon the lacerated lateral sinus and the bleeding at once stopped. The assistants tied the arteries, put in sutures above and below, and completed the toilet of the wound. A compress of iodoform gauze was quickly substituted for the finger, the cavity stuffed with sublimate gauze, and pressure-bandage applied. For a week the wound was dressed without disturbing the iodoform-gauze pledget over the tear in the sinus. On its final removal, the sinus was found healed and its wall covered with healthy granulations. Convalescence was slow, but uneventful.

In this case also the acute caries of the mastoid cells must have been coincident with the first signs of middle-ear trouble; and had operative interference been still further postponed, sinus-phlebitis and pyemia would have surely resulted, perhaps with a fatal termination.

Case III.—A. L., man, age twenty, was admitted on July 2, 1888, to the German Hospital, for recurrent febrile attacks, with slight chills. The attacks occurred at irregular intervals of from two to five days, reaching 104½° in a few hours, being followed by rapid defervescence and some perspiration. In the intervals the patient was afebrile and in fairly good condition. The spleen was slightly enlarged, and the patient was treated for malaria without marked improvement. As his right ear had discharged since childhood, I was requested to examine the case. I was unable to discover anything but a chronic suppurative otitis media, with inspissated, fetid pus, after the removal of which the membrane and all the ossicles were found to be absent. The mastoid was apparently healthy, but I suspected septicemia from retention of decomposing discharges, and ordered the usual treatment.

While considering the advisability of opening the mastoid for the purpose of thorough drainage, sudden, acute, painful swelling over this bone made the diagnosis more clear and led to immediate operation. We found subperiosteal abscess, communicating by a small perforation near the tip, with a very large, smooth-walled cavity in the mastoid, filled with cholesteatomatous masses and cheesy pus, on the removal of which the hole in the bone easily contained ten grams of fluid. There was free communication with the antrum, and thorough disinfection of all the parts was easily secured. The walls of the cavity were scraped, and the wound healed gradually, with a deep, indrawn scar. Symptoms of septicemia, however, persisted for some time. The right shoulder-joint became swollen and painful. Lobular pneumonia of thrombotic or pyemic origin developed. It was four months before the patient could be discharged cured.

Case IV.—F. W., girl of eighteen, seen by me in consultation for severe vertigo and nausea, which had come on suddenly and had lasted about three days when I was called. I had known this young woman eight years, had prescribed glasses for her and examined her ears once or twice during this time. When five years of age she passed through a severe attack of scarlet fever, with otitis media, the purulent inflammation sweeping away the drumhead and all the ossicles on both sides. When I first examined her, I found her extremely deaf, the wall of the tympanum being almost completely covered with epidermis, and merely moistened by a minute amount of pus, which was not fetid. The patient wore artificial drumheads, which materially increased her hearing power, and had always been a subject of interest to me, as I had found very few patients benefited by these contrivances. During all these eight years there had been no aural symptoms. The vertigo was very marked whenever the patient attempted to rise or moved her head quickly, the patient falling toward left side. It was followed by slight nausea, which became more marked if the motion continued. The family physician had excluded the possibility of any etiological factor but an affection of the brain or ear. Both ears showed absence of drumhead and ossicles, and dry, bony walls of the cavum tympani, but the mastoid appeared to be normal.

An examination of the eye was made, with negative result. The case was treated expectantly for two days, when slight pain was experienced and tenderness upon pressure observed in the neck just below the left mastoid process. On consultation, we determined to open the left mastoid. This being done at the customary site, the bone was found very hard and sclerosed. At a depth of 12 millimeters a cholesteatoma was found in a cavity about the size of a lead-pencil and about 6 millimeters deep, running inward toward the semicircular canals.

The patient made a good recovery, all symptoms abating materially at once. Slight vertigo, however, persisted on rapid movement for about two months. The bony cavity and the artificial hole in the mastoid became closed throughout by bone.

In this case it would be difficult to fix the time

at which the mastoid disease commenced, but I believe we are safe in presuming that it had lasted several years.

As above stated, these cases are merely types, and I have observed quite a number resembling one or the other more or less closely. In all these cases, disease of the mastoid, acute or chronic, produces a great destruction within the bone, symptoms not arising until the pathological process approaches or reaches the meninges or the semicircular canals on the one hand, or the periosteum on the other. And the lesson which they teach is: That in any case in which purulent discharge from the middle ear continues, or extensive carious destruction of the contents and walls of the tympanic cavity exists or has existed at any time, latent mastoid disease should be considered as a possibility and guarded against.

DISCUSSION.

Dr. J. E. Sheppard: Some symptom has always existed in those cases that I have seen sufficient for a probable diagnosis of mastoiditis. Among the cases I remember are two or three —several, perhaps—where the only possible indication for operation was a profuse purulent discharge, continued over too great a length of time for a simple acute middle-ear suppuration. I have repeatedly opened the mastoid and found pus in larger or smaller quantities when there was not any discharge from the tympanic cavity. In other cases the only symptom present indicating trouble was pain, which was not located in the mastoid at all, but over some other portion of the affected half of the head. At other times there has been no pain present, but slight tenderness over the mastoid—so slight it could only be elicited by very firm pressure or percussion.

The history of one of my cases emphasizes the importance of one of the symptoms of which Dr. Fridenberg spoke, and that is the drooping of the posterior-superior canal-wall.

The patient was a man thirty-five years old. Two years before he had a simple recurrent middle-ear suppuration, which rapidly recovered. At the last attack, he came with what was apparently a similar recurrent middle-ear suppuration. He had considerable pain in the mastoid region, with tenderness, which, with the usual abortive measures, subsided. He had no discharge from the ear after about two weeks of treatment, no pain, no tenderness over the mastoid; the only symptom left was the drooping of the posterior-superior wall of the canal, which seemed no more than usually sensitive. The man returned to his work, and I was about ready to discharge him as cured. I told him, however, as a precautionary measure, to come back for a final visit in a few days. About two days after this he came to me in great haste, saying that he had been seized during the preceding night with severe pain, fever, and vomiting. I operated the same day. I found a little granulation-tissue and pus in the mastoid antrum; practically no pus in the tympanic cavity, but a carious canal leading from the upper portion of the tympanic cavity, the so-called attic into the brain cavity. Undoubtedly he had had a suppurative process going on in the mastoid antrum and tympanic attic all the time, even though his symptoms had subsided so entirely. This process had extended through the roof of the tympanum and set up a meningitis, which caused the man's death, simply because I had not learned to realize the importance of this one symptom. I had never seen in the books nor heard the statement made that drooping of the posterior-superior canal-wall, when attended by absolutely no other symptoms, was a sufficient indication for operation.

Dr. Mathewson said that it is somewhat difficult to get comparative statements as to the number of cases relieved by operations on the mastoid, as compared with those which were not treated by operative procedure—at least not by removal or chiseling away of the bone.

He has sometimes thought, too, that the mastoid got blamed for deaths that it was not quite responsible for, because in a number of cases of *post-mortem* examinations he has seen, the mastoid was not found to be the cause of the trouble. The brain-abscess or meningitis had not originated in the mastoid, and there was no mastoiditis to account for the death.

Dr. Alderton of Brooklyn said that any bulging of the posterior bony wall of the canal, even so far out as the bony orifice, in connection with tenderness and other symptoms involving the mastoid, was a pronounced indication for operation, and cited a case in which the bulging had been confined to the inferior-posterior wall, just at the orifice of the bony canal.

Dr. Fridenberg: The gentlemen who have been kind enough to discuss my paper are all evidently in agreement with me on the essential points which I brought forward. Knowing that I was to address a meeting composed principally of general practitioners, I had tried to emphasize this point: That, as a rule, when we operate for mastoid disease, I should say, perhaps, in ten per cent. of the cases, it has lasted a long time with-

out our knowing it, and in ninety per cent. it has been there, but not reached the point where operation was necessary. But almost every aural surgeon is surprised each time he operates at the great amount of destruction he finds already present.

FUNCTIONAL INDIGESTION, ITS CAUSES AND TREATMENT.[1]

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The term indigestion refers to a condition, not a disease; this disturbance, then, is always functional. The use of the word "functional" in the title of this paper is to direct attention to those indigestions which are in no way connected with any organic lesion of the stomach. Hence the cases which occur in cancer, acute and chronic gastritis, ulcer, and other lesions are eliminated from our discussion; likewise dyspepsia with its exacerbations, which accompanies atrophy of the stomach and cicatrices following ulcer, does not come within the limits of this paper. Cases of indigestion due to diseases in other parts of the body are classified here, as are also those caused by mental or emotional impressions. An indigestion arising from a neurosis is functional in the sense here assigned to that term. To understand these views, it is necessary further to differentiate indigestion from dyspepsia. We use the term indigestion to indicate a brief, single attack of derangement of digestion, while dyspepsia refers to a pathological, perhaps chronic, condition, which encourages or allows a number of attacks of slight or severe gastric or intestinal digestive disturbance, occurring in succession, and often covering considerable time.

Thus limiting our discussion, it may be observed that this form of indigestion is caused by (1) some indiscretion in diet; (2) some irregularity in the time or manner of taking food or drink; (3) some bacterial effect upon the food; (4) some neurosis or reflex disturbance, or (5) some sudden mental or emotional impression.

1. Indiscretions in diet include failures in preparing food properly, as well as the selection of proper quality and quantity. Idiosyncrasies prevail, which, if disregarded, frequently precipitate an attack of indigestion. In cases of anemia and exhausting diseases, the reduced power of the stomach may allow an indigestion to occur after taking food which, under normal circumstances, agrees perfectly. At such times, the secretion of gastric juice is diminished on account of the altered condition of the blood; the peptic glands do not receive the stimulus which normal blood gives them, and the supply of blood is reduced so low that with normal activity they still would be unable to secrete a normal gastric juice. If under such circumstances a full meal is taken, or a diet chosen which requires greater digestive power than the stomach possesses, indigestion is the result. Attacks of indigestion are precipitated in cases of dyspepsia when the patient has been thinking so steadily that the stomach is deprived of a full supply of blood, especially do these occur if the individual returns at once to his work, not allowing time for digestion to be well started before the brain withdraws the gastric blood-supply. The headaches resulting at such times do not indicate brain-exhaustion, but stomach-exhaustion. The gastric secretion is diminished, just as in anemic cases. The "nervous" or "bilious" headaches of business men frequently are indications of indigestion of this variety, and illustrate one very prominent class of cases of functional dyspepsia. A predigested or mixed diet on days when patients need to work hard, will often remove the tendency to these attacks.

2. Physicians and others who cannot or do not have meals at regular hours, frequently suffer with indigestion caused by such irregularity. The derangements due to rapid eating are well known. The checking of gastric secretion by drinking cold or iced water is detrimental in cases of diminished secretion or impaired tonicity, except when taken at such an hour as will cause the reaction to appear when food is taken. In cases of hypersecretion of gastric juice, cold drinks with meals do little if any harm, provided the food consists mainly of proteids; but if the food consists mainly of starches or sugars, drinks with meals are objectionable. Idiosyncrasies prevail here, however, as in other cases, and sometimes the dilution of the gastric contents, by large draughts of liquid, interferes with digestion of the proteids likewise, at least delaying the process, whether the drink be cold or hot.

3. A very prominent cause of indigestion is the presence in the stomach or bowels of bacteria or their products. Sarcinæ, the *Bacillus lacticus*, *B. butyricus*, and other bacteria, readily inaugurate fermentative processes in the stomach under circumstances of diminished tonicity or indiscretions in diet. The gases and other products of these agents may cause pain and other disturbances in the intestines with diarrhea, etc.

[1] Read before the Illinois State Medical Society, May, 1896.

4. In the course of ataxia and other nervous diseases, the occasional effect upon the vasomotor system is such as to interfere with gastric secretion and precipitate an indigestion. This encourages the development of bacterial operations and products. Gastrodynia, gastralgia, or neuralgia of the stomach, may interfere with digestion, and induce conditions which may develop favorable culture-media for bacteria, and precipitate an attack of indigestion. The severe pains of renal colic, or an attack of gall-stones, may cause similar functional disturbances with deranged digestion.

5. Finally, a very common cause of indigestion in stomachs where no organic lesion exists, where the food is proper, and mastication well performed, is the sudden impression made upon the nervous system by some profound disturbance to the emotions. Fear, anger, grief, surprise, intense or anxious thought, may interfere with digestion. The temporary shock to the vasomotor system which causes constriction of the arterioles of the stomach, impedes secretion of the fluids necessary for the process of digestion, and here again the growth of bacteria is encouraged.

The following indications may be regarded as pointing out the course of correct treatment in these cases, to be varied to meet the necessities of individual patients: (1) Remove the cause; (2) check or prevent the growth of bacteria; (3) assist digestion; (4) repair damages done.

1. If improper food is the cause, it should be immediately corrected ; if food remains in the stomach it should be immediately removed by emesis or lavage. Nothing can be done in many cases until the stomach is empty. If some disturbance of the vasomotor system is the cause of the indigestion, the administration of nervines to quiet the general nervous symptoms, and nitro glycerin to dilate the capillaries, and allow the blood to flow freely to the stomach and increase the secretion of gastric juice, will yield excellent results. The reasonableness of this treatment is readily seen. Nervous shock—a fright, sudden anger, grief—by its stimulation of the vaso-constrictors or paralyzing effect upon the vaso-dilators, prevents the flow of blood about the peptic glands in sufficient quantity to permit a normal production of hydrochloric acid. A deficiency of hydrochloric acid in the gastric juice, even when temporary, causes at least three abnormal effects: (*a*) A failure to digest proteids; (*b*) it permits putrefactive changes in the food; (*c*) by failing to excite peristalsis it allows the food to remain too long in the stomach. The occurrence of these facts make a fourth undeniable in most, if not in all, cases, *viz.*: The formation of a favorable culture-medium for bacteria.

If the nervous impression is not too great, and there is only a reduction of the normal amount of hydrochloric acid—not a complete checking—the administration of pepsin and hydrochloric acid may be sufficient to overcome the paroxysm. They assist in the digestion of excess of food, and in case of the presence of organisms they serve another purpose. They help to restore the gastric juice to its normal condition, and then enable the stomach to repel the invaders.

2. The indication is to prevent or check the development of bacteria. The rational course to pursue, and one which should be borne in mind from the beginning, is to aid the natural forces, as already pointed out, by trying to restore the normal secretions. Very frequently the urgency of these cases is so great, however, that more rapid and positive methods must be adopted. If the stomach has been emptied, and frequently when it has not, the use of antiseptics, like carbolic acid, salicylate of bismuth, or salol, will give quick and grateful relief. Cases of gastrodynia may frequently be relieved in this manner. I am now treating a patient with nephrolithiasis who has occasional attacks of gastrodynia, due apparently, to an accumulation or formation of gas in the stomach, caused by indigestion. The most successful treatment of this case has been three-grain doses of salol, from four to eight times a day. When the abdomen is tense and the pain in the stomach severe, three or four doses of the salol relieve the patient entirely, leaving the abdomen soft and normal. In similar cases of gaseous distention accompanying or following indigestion in children, I have used salicylate of bismuth with marked success. I have used carbolic acid in hundreds of cases for gaseous distention with very gratifying results. Resorcin is milder, and does well in many cases. Gelsemium may be given with any of the antiseptics above mentioned for its soothing effect upon the gastric mucous membrane, and for its anodyne influence upon the nerve-terminations in that membrane.

A very important part of the treatment of these cases is required to overcome the results of the presence of bacteria and their products. The pain in the stomach or bowels caused by the irritating gases, remains of undigested food, etc., may require anodynes; and the headache, caused by the absorption into the blood of bacterial alkaloids, may require the bromids and other nerve-

sedatives until the blood can be changed or the poisons eliminated. Diarrhea is a very common result, but one which can usually be controlled by antiseptics; if particles of undigested material remain in the intestine, they should be removed by a cathartic. To produce catharsis and at the same time act as an antiseptic, calomel is pre-eminent, and may be given in doses of one-tenth of a grain with bicarbonate of soda, one grain, every hour or two for adults, and every two or three hours for children. Half of this dose acts well for infants under one year. For simple antisepsis, salol, salicylate of bismuth, boric acid, carbolic acid, and resorcin frequently do good service. Salicylate of bismuth, salol, and resorcin, in one- or two-grain doses every two or three hours for children, will often give most satisfactory results; smaller doses should be given to infants, and larger to adults.

3. The digestion requires assistance very often on account of some weakened condition of the system, as in convalescence from acute diseases, or because of an excess of food. It is necessary to recall the digestive ferments, and their specific action at such a time in order that assistance may be intelligently rendered. The administration of diastase and pancreatin, when non-nitrogenous foods are imperfectly digested, is sometimes followed by excellent results. Hydrochloric acid and pepsin often act quickly and hasten the digestion of nitrogenous foods. When the digestion of both classes of food is at fault, peptenzyme not infrequently gives relief. Ipecac in six- or eight-grain doses, three times a day, increases the biliary secretion.

4. The fourth indication seldom requires attention except in these debilitated cases, and where the offending materials have remained in the alimentary canal an unusual time. In the former case, tonic and corrective treatment may be required. Lactopeptin and phosphates will be found especially serviceable. Malt often is useful. The elixir of pepsin with aromatic sulphuric acid assists digestion, stimulates the secretions of the stomach, the liver, the pancreas, and probably the intestines. When the undigested materials have remained unusually long in the bowels, antiseptics will be required in addition.

It will have been observed that the writer emphasizes the importance of antiseptics in the treatment of functional indigestion, as he has elsewhere done in the treatment of dyspepsia. It is more essential in dyspepsia, but it is important in indigestion.

THE BUSINESS END OF IT.[1]

By GEORGE W. MILES, A.M., M.D.,
of Oneida, N. Y.

The presentation of formal papers at stated meetings of the members of our profession, thereby affording opportunity for discussion and comparison of notes, is conceded to be a custom furnishing to us all both pleasure and profit. I have thought best, however, to speak of a matter which I feel sure is of more than passing interest to all of us and of decidedly practical importance.

While the profession of medicine is an ancient and honorable one; while its study and practise are of entertaining and engrossing interest; while there is no nobler field for earnest study and excellent effort; while it furnishes unlimited opportunity for kindly words and charitable deeds; while it is the one occupation of all others to call out the best of our moral natures as we administer to human suffering; while we may and should take pride in our calling, and as we pursue our busy way delight to do good to all men; while we love to believe that our life-work is placed on a plane even beside that of those who preach the Gospel of Christ; and while it may almost seem a sacrilege to ask you, even briefly, to withdraw your minds from considerations so high, so noble, so beneficent, still I feel it is the truth to say that so far as most of us are concerned, at least, we must support ourselves and our families by our labors, and the question therefore becomes an important and a practical one, "How much is there in it?" I hope I may not be thought mercenary, then, if I give some consideration to-day to the matter of the kind of pecuniary harvest one may gather after a lifetime of toil in the medical profession.

The statement admits of no questioning, I think, that doctors, as a class, are far from being rich men. In proportion to the capital invested in money expended for education, in culture, in hard work, in skill, in experience, there is no class or business, considered as a business, so poorly paid as ours. A recent writer says: "Physicians are generally admitted to be poor financiers. There is probably no class of men who realize so little financially from their labors. Persons are often astonished to learn in how straitened circumstances many physicians, who were known to have had large practises, leave their families at death. They live moderately, indulge in no luxuries, yet after all debts are paid there is left to the family, probably, only a very humble home, and that with a mortgage upon it."

[1] Read at the meeting of the Third District Branch of the New York State Medical Association, held at Auburn, N. Y., June 11, 1896.

This is a picture which is not overdrawn. The large accumulations of wealth resulting from transactions in the commercial world, are unknown in the medical profession. Occasionally a physician has met with goodly returns from wise investments, and the beginnings for such investments may have been earned in the profession, but riches attained solely in and by the practise of medicine I do not believe to be possible in these days, outside of a few of the specialties in the larger cities. One of the large New York dailies has recently published a comprehensive list of the millionaires of this country, and in that list is not to be found the name of one practising physician.

Even a comparison of fees with those of other professions is not advantageous to our own. In the village of my home, not long since, a practising attorney collected a bill for a client of $500, and for that service charged and received a fee of $125. But a physician in the same neighborhood, having rendered some service far above and beyond any valuation, perchance where human life itself hung in the balance, is told, when he presents his bill of $1 per visit, that it is too much, and that the physician who preceded him in attendance upon the family never charged more than 75 cents. This is another picture which is not overdrawn, either; in fact, it has even actually happened in the experience of the writer. With such a remarkable inconsistency in the matter of fees between the professions of law and medicine, it becomes at once apparent that there is something wrong somewhere—something needful to be remedied.

There are probably more factors than one entering into the condition which render the profession of medicine a poorly paid one. There is the fact of the extremely crowded ranks of the profession; also the fact that we are all probably very virtuously trying to live up to the teachings of the medical code of ethics, and although its principles are lofty and honorable, it certainly deals a rather severe blow to all aspirations for money-getting. Then there is the large amount of charity work which we must all do—the care of the sick and suffering among the Lord's poor (and it should fill us with gratitude when we stop to think that there are those even poorer than the doctors). Such charity services we should not and do not shrink from. It may not be the fault of the poor that they are poor, nor is it ours that we must serve them. There is the other class, though, the Devil's poor, or "dead beats;" and the fact that so much of our precious time is given up to them for nothing is, I believe, decidedly our own fault. It will be well with us all when with this class of patients we shall invariably adopt the custom of declining with thanks their entire business.

Again, there are the necessarily enormous expenses of professional life. Also, there is the competition of the public hospital and the private hospital, thoroughly advertised (within the code, of course), and the free dispensaries. Once again, there is the common practise which exists among all men, and women too, of passing around among their relatives, friends, and neighbors the prescription which some poor doctor has received only one very modest fee for. But this brings us to another subject, one worthy of an essay all by itself—to dispense or not to dispense; whether 'tis better to bear the ills we already have and go on writing prescriptions, by means of which the doctor shall grow poorer and the druggist richer every year, or to write not at all. Upon this special discussion I do not desire at this time to enter.

Some of these matters which help to make the average medical income weigh lightly in the financial balance, we may not be able to remedy. There is, however, one thing which physicians can do and which, as a matter of fact, I think they sadly neglect. I refer to the application of prompt business methods in the collection of their accounts. The nearer the doctor's bill is brought to a cash-transaction and -basis, the better, not only for the doctor, but the debtor as well. An absolute cash-basis for doctors' bills may partake too much of the millennium to be practicable in everyday life, but it is certainly true that we need not allow the pendulum to swing to the other extreme and permit the physician's account to become the most distinctive credit-system in all the world; and that I believe it is to-day.

Something may be done by physicians, individually and collectively, in the protection of their financial interests. Doctors are proverbially poor collectors. They are pressed for time, it is true, but nothing is or can be of more importance to them than their bookkeeping, and it should be carefully and methodically done, instead of delaying it until odd times and thereby embarrassing many individuals who would pay, but whose lives are too short, or their residence in any given place not sufficiently extended, to meet the requirements of the slow bookkeeping which many physicians indulge in.

Doctors' bills are not presented with sufficient frequency. There seems to be an idea prevalent in my own immediate neighborhood, and I pre-

sume elsewhere, that it is not genteel to present a doctor's bill in less than a year from the time it is made. Why such an idea should exist, while the butcher and grocer and every other tradesman is steadily presenting the doctor his account in from thirty to sixty days, I do not know. I do know that I have lost many a dollar by neglecting to present my account when it was fresh in the mind of the patient. It is probably true of all bills, medical as well as others, that they had best be collected early and often. They are then smaller and more easily paid. I know of no reason why physicians' accounts should not be presented and collected at the end of every ninety days.

If a uniform method could be adopted by all the physicians of any given neighborhood, and surely there is no reason why there may not be, it would be more helpful to all. In every community, large or small, there ought to be sufficient harmony among medical men that concerted action might be taken as to an established fee-bill to be religiously and absolutely followed by all, so that a uniform method in the collection of accounts might be established, so that lists of delinquent debtors could be exchanged, and nothing be omitted which should tend to the upbuilding of each physician's business and material interests. It would not prove amiss should we draw a lesson from the trades-unions and organizations for mutual protection which are so familiar to us in the business world.

If the medical profession is to be placed upon a higher plane in the matter of its emoluments and rewards, so that as old age comes on and the hard work of youth and middle life is no longer possible, we shall be assured of competencies and positions of security, then indeed we must think once in a while of business, and not always of science. The sharp competitive struggle should not lead us, in our anxiety to be seen doing business, to do it for less fees. Fees are already too low, and should be raised, rather than lowered. Neither should it lead us to do for those who do not pay us and do not mean to, and at the same time are of the class who have money for everything else in the way of luxuries and pleasures. It should ever be our policy, early and late, in season and out of season, to teach the laity the lesson which is of so great importance to us, that we as laborers are worthy of our hire. We shall get little outside aid; even the laws of our land do not help us much. One lonesome legislator, indeed, during the last session in this State, introduced a measure to make doctors' bills against estates a part of funeral expenses to be settled as preferred accounts, but he received little sympathy from his brother statesmen. However the medical legislation of the present time along the line of higher standards of medical education may assist future generations of medical men by the exclusion of quackery, it is of little help to those of us now in the field. We must help ourselves.

We are not necessarily humanitarians and philanthropists to the exclusion of every other sentiment; there is a higher duty—that of self-protection. It is too narrow a view to take to be contented simply with a good living as we go along. Ample provision for the future is a duty which we owe to ourselves, to each other, to our families, to our children who will live after us; and deep in our innermost hearts should be the resolve to advance by all the means in our power the business status of our profession.

CLINICAL LECTURE.

THE ASPIRATION AND CHEMICAL EXAMINATION OF THE GASTRIC CONTENTS [1]

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We shall consider this morning the chemically diagnostic use of the stomach-tube, removing samples of chyme, and investigating the course of digestion by analysis.

To be strictly scientific, I should like to treat every case of gastric disease only after chemical examination of the chyme —not neglecting other methods. As a matter of fact, I do not practise this in more than half of the cases that present themselves. The average patient prefers guesswork, and a possible delay of relief, to the scientific but disagreeable procedure of passing the tube. The test is best applied after a light and simple meal. I like for most cases the following meal which represents all kinds of simple and nutritious foods, including fats, carbohydrates, and both animal and vegetable albumins, which are digested in a slightly different manner. It consists of a slice of bread and butter, a chop or small steak, broiled, and a glass of water.

The patient, Dr. ——, is a comparatively young man, ordinarily in good health, who complains of distress after eating, of sick headache, of some belching of gas, of lack of appetite. The bowels are usually regular, and there is no history of vomiting. The case appears to be a transient dyspepsia, since there is no dilatation of the stomach, and since other organic conditions have been more or less positively excluded. It is also probable that the dyspepsia is of the common subacid and atonic type. In men, regularity of the bowels is the usual condition with dyspepsia. The bowels may be irritated into a diarrhea by the unexpected discharge into

[1] Delivered before the senior medical students of the University of Buffalo.

the duodenum of a mass of fermenting chyme, but when the stomach-trouble begins gradually and persists, the intestine usually accommodates itself to circumstances. In fact, there are many persons who consider themselves in good health who have a chronic failure of the gastric function, the bowels performing vicariously the duties of the stomach. Vomiting, it seems to me, should not usually be considered an abnormality, and very seldom an abnormal symptom of the stomach. It is a conservative process, allowing the stomach to rid itself of poisonous or irritating materials, or of food which is irritating simply because it is superfluous. The horse, which rarely vomits, is especially subject to violent and dangerous functional gastro-intestinal disturbances. The cat, which vomits readily and voluntarily, almost never has such trouble. As a matter of experiencc, I am rarely consulted by persons who vomit freely. Vomiting, however, becomes serious when it is a reflex from cerebral, intestinal, peritoneal, and uterine troubles, and when it marks severe organic lesions of the stomach.

The passage of the stomach-tube is a matter to be considered seriously and undertaken with care. It has caused death, and you can readily appreciate the contra-indication in advanced heart-disease, pregnancy, arterial degeneration of old age, syphilis, etc., especially when the degeneration has resulted in aneurism. I do not understand that the danger, even in thoracic aneurism, is from the direct impingement of the tube, but rather from the straining and gagging of the patient and the resulting rise of blood-tension. The local gastric conditions, which contraindicate the passage of the tube, may be summed up in the one word ulcer, including any kind of ulcer, as of the peptic type or due to the breaking down of a cancer.

Obviously, most of the dangers here enumerated may be excluded in the present case. I shall, however, examine the mouth and throat to see that no false teeth are present, and that there is plenty of room for the passage of the tube through the fauces, and I shall listen also to the heart—which is beating normally, without murmur.

Patients usually prepare themselves for the ordeal by throwing the head backward, thinking thus to lessen the angle in the throat. This attitude, however, makes a compound curve in the esophagus, and really hinders the passage of the tube, so the patient must be directed to sit with the head upright. You will notice that I am holding the tube under the warm-water faucet. This is merely to lubricate the tube, and prevent the increased reflex from a cold body. The tube should be thoroughly cleansed and disinfected immediately after use, and put away in readiness for the next case. The patient is directed to "swallow hard whenever he gags," and, pushing gently on the tube, it soon passes till the fifty-five centimeter-mark is at the incisor teeth. At this depth, the tube works best in almost all adults with surprisingly little variation, due to difference in height.

I shall try to remove the gastric contents by expression, pressing my hand over part of the left hypochondrium and epigastrium, and directing the patient to breathe deeply, I follow each expiration with my hand and resist the expansion of the chest during inspiration. With this pressure, the gastric muscle is able to force some of the chyme out through the tube, and fifty c.c. are readily collected. I must confess to having been unusually successful with the method of expression in the present instance. I expect in most cases to be obliged to strip the tube with this roller-pump, and thus obtain the gastric contents by suction.

An inspection of the matter obtained shows the remains of bread, well masticated and softened, with little oil-globules representing butter, and partially disintegrated bits of meat. There is a slight rancid odor of butyric acid. There is undoubtedly some acetic and lactic fermentation with the butyric. There is no more than the normal slight amount of gastric mucus present. This stringy mass comes from the esophagus and is normal. I have known, however, of the diagnosis of gastric catarrh based on the presence of esophageal slime. Thus from simple inspection we are able to say that mastication and the rest of mechanical digestion are well performed, at least in the present instance, that there is a slight amount of fermentation, that there is no gastric catarrh, nor evidence of other organic lesion.

Litmus-paper shows the chyme to be acid as it practically always is, unless mixed with large amounts of bile, or blood, or with alkaline drugs. It must next be determined whether the acidity is due to free acid or to acid compounds. I have here a number of papers stained with anilin dyes, which change color in the presence of almost any free acid, certainly in the presence of those which we may find in the stomach contents. Tropæolin changes from yellow to magenta, gentian-violet to sky-blue, Congo red to blue, and benzo-purpurin from reddish to dark blue. Only the last two changes occur here, showing that there is free acid present, but to a slight degree only. To determine whether the free acid is hydrochloric, at least in part, I use a mixture of resorcin and cane-sugar, either a three per cent. watery solution of each (Boas' solution), or paper wet with such a solution and dried, or the crystals fused together. The test-paper is wet with the gastric contents and dried with heat, either over a gas or alcohol flame, or on a lampshade, or even a register, if the last is hot enough. Here you will see a distinctly reddish tinge, indicating, I believe, that an anilin dye is formed by the action of the hydrochloric acid on the aromatic ring contained in the resorcin. The same color-reaction occurs, you see, when the fused crystals of resorcin and sugar are heated in a capsule with a drop or two of gastric contents.

Next, let us ask, if carbohydrate digestion is normal? The filtrate from the chyme contains no starch, since iodin gives no color. The ordinary copper reduction-test shows that there is considerable sugar present. This sugar, by the way, is maltose, and not glucose, as was formerly taught. Up to three-quarters or an hour after a light test-meal, small quantities of starch may be present in the filtrate. Here, on account of a mistake, we are examining gastric contents nearly two hours after a meal. The test, to be rigid, should be made an hour after eating; to exclude minor disturbances of digestion, it should be made an hour and a half after eating. At this late

period of digestion we are making a very lenient test, so that apparently normal results cannot be taken positively, while deviations from the normal are all the more significant. Raw starch, which is commonly taken in the form of bananas, passes through the digestive juices till the pancreatic ferment is reached. Even cooked starch is not digested by ptyalin except in the liquid contents of the stomach—you see that the iodin-reaction occurs strongly in the unfiltered mass of chyme. While a moderate reduction of copper is normal, a heavy precipitate would indicate, not that carbohydrate digestion was unusually good, but that absorption was deficient, for the fully digested products of digestion should be absorbed from the stomach almost as soon as formed. In making these estimates, we must rely on experience and judgments, and, in fact, if carbohydrate food does not form acetic and butyric acids after gastric digestion is well established, that is after one hour P. C., we must be fairly well satisfied.

Nearly all albuminoid food enters the stomach coagulated by heat; if not, it is probably coagulated by the rennet ferment or ferments, as the casein of milk certainly is. Then, the hydrochloric acid forms an acid albuminate which is soluble, but which is coagulated by heat again, as you see by this test. Filtering out the albumin, the remaining clear liquid is floated over cold nitric acid, when a ring of albumose or partially peptonized albumin is formed. Normally, much of the albuminous food is digested only to this degree. Meat, however, is digested into true peptone, which I throw down by adding a fresh solution of tannic acid to the third filtrate. Tannic acid must not be used if starch is present, because the latter would give this same reaction; in the presence of dissolved starch, mercuric chlorid or some other reagent must be used in the third step. If the solution of tannic acid stands too long, gallic acid is formed, whose therapeutic value, you remember, is due to its inability to precipitate any form of albumin. I have described the digestion of albumins from a clinical standpoint. The precipitations here are about what we should expect normally, but we are applying the test two hours after eating instead of one hour after. At this stage of digestion, acid albumin should be peptonized almost as soon as formed, so that we may conclude that digestion is slow. The absorptive power of the stomach seems to be normal, as both sugar (digested carbohydrate) and peptone (digested albumin) are present in very moderate quantities. This is about the only reliable test for absorption, the elimination of potassium iodid through the mouth being utterly unreliable.

How are we to account for the slow digestion of albumin and the persistent, though slight, fermentation of carbohydrates? By the fact that very little hydrochloric acid is secreted. After a hearty meal this acid is taken up by albumin so that it may never be found free, but after a light meal, and especially at the time when digestion should be at its height, two hours after eating, there should be found in the chyme nearly the physiological proportion of acid in the clear gastric juice, that is, two per mille, or thereabouts. We need no quantitative estimation in this case, for the reaction with resorcin was slight, and even a tenth of the normal proportion of hydrochloric acid would not only yield a marked test with this reagent, but also with all the anilin dyes mentioned; whereas, free acidity was shown only by the more delicate tests with Congo red and benzo-purpurin.

There is an evident call for assisting the acid secretion of the stomach by administering a few drops of hydrochloric acid when it is most needed, about an hour after eating, and by urging the free ingestion of common salt on account of the contained chlorin. A better acquaintance with the case may suggest the need of rest from professional work, of positively tonic treatment, or of stimulating the glands of the stomach by using a bitter before meals, or preferably strychnin, which is both a bitter and a definite excitor of efferent nerves. Dieting, except so far as to avoid rich and useless preparations, should not be insisted on, except in extreme cases. A patient like the present one needs the appetizing effects of a variety of foods, and should not be limited to substances that are simply nutritious without being palatable.

CLINICAL MEMORANDUM.

A CASE OF HYPEROSTOSIS CRANII.[1]

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THIS remarkable and, fortunately, rare disease has been so recently described by Putnam[2] that I shall give only a very brief outline of a case now under my observation:

R. B., unmarried woman, aged thirty-one years; height 4 ft. 9 in. Father died of "brain-softening" (out of his mind five or six weeks); mother died of diabetes. Patient has four brothers and one sister, all healthy. Her head seemed to be somewhat misshapen from birth. When quite young, protrusion of her eyeballs was noted, and when she became old enough to go about the streets other children commented on this odd feature. Since childhood she has frequently been troubled with very severe headaches.

As a child, she was bright, cheerful, affectionate, possessed an unusually retentive memory, and excelled most other children of her age in her studies. Physically she was as active as she was mentally alert, and as she grew older concerned herself a great deal in the welfare of her brothers and sister.

When twenty-one or twenty-two years old, she had an attack of melancholia lasting about six months, from which she made a complete recovery. Up to this time the malformation of the head had increased. For the past ten years it has remained practically unchanged.

At the age of twenty-five she "slept" for a period of two days, and again at the age of twenty-seven. In 1895 she had an attack of mania lasting two or three weeks.

[1] Reported at a meeting of the Pittsburg Academy of Medicine, September 7, 1896.

[2] *Amer. Jour. Med. Sciences*, July, 1896. Bibliography, with "added" cases.

Complete recovery followed. She was admitted to the insane department of St. Francis' Hospital, February 1st last, in a maniacal condition. Her mental condition has now greatly improved.

In general appearance she is greatly undersized (not a family characteristic), has misshapen head, protruding, widely separated eyeballs, prominent nose, thick-set neck, and wide and sunken face; heavy, protruding, lower jaw

Fig. 1.

and large nose are characteristics which go to make up a most striking and grotesque figure. Her forehead is high. The cranium is flattened at the occiput, and appears as if pressed out from the left frontal eminence to the right occipital region. There is on the forehead a localized overgrowth of bone, three inches in diameter, which has its center one inch to the left of the median line. The fingers are short and stubby, the second and third on both hands being webbed up to the second phalangeal articulation. The second and third toes on both feet are completely and very closely webbed, while the third and fourth toes up to the last phalangeal joint on both feet are also webbed. Her skin is somewhat coarse and greasy, showing a number of folds. The hair is stiff.

The "stubby" and webbed condition of hands and feet and the dwarfish stature of the patient are features which,

Fig. 2.

together with the early appearance of malformation of the cranium, point most strongly to a teratologic defect of the trophic apparatus as the cause of the symptoms in this case, and lend support, as much as one case can, to this theory of the disease.

MEDICAL PROGRESS.

Bilious Malarial Fever with Hemoglobinuria.—As the result of a clinico-pathologic investigation Boisson (*Revue de Médecine*, 1896, No. 5, p. 360) arrives at the conclusion that the hemoglobinuria observed in certain forms of malarial fever is due to excessive destruction of red blood-corpuscles by the plasmodium malariæ of Laveran, in conjunction with functional insufficiency of the spleen and probably of other structures, such as the bone-marrow, believed to be concerned in the elaboration of the products resulting from the disintegration of the red cells. The icterus that accompanies the hemoglobinuria in intense attacks is of hematogenous origin.

The Treatment of Labyrinthin Vertigo.—At the recent Congress of the French Society of Laryngology, Otology, and Rhinology, Gellé (*Gaz. hebd. de Méd. et de Chir.*, 1896, No. 41, p. 485) discussed the subject of labyrinthin vertigo and the modes of treating the condition. Most commonly the affection is a result of lesions of the tympanum or its adnexa. Under these circumstances the treatment will be directed toward exhausting the tympanic cavity, freeing the labyrinth by means of politzerization, catheterization, rarefaction, etc. If the morbid changes are chronic in character surgical intervention will be called for. In case of hemorrhage into the tympanum leeches should be applied to the mastoid region, a suppressed bloody discharge reëstablished, a drastic administered and a milk-diet observed, with rest and injections of ergotin. If hyperemia of the tympanum exist, paracentesis should be practised, followed by irrigation with tepid water to facilitate the flow of blood. Later, hypodermic injections of pilocarpin may be employed; or iodids may be administered; gouty patients should be given colchicum, or colchicin, or sodium salicylate. In cases of cardiac or renal disease a milk-diet and intestinal revulsives render a useful service. If the labyrinthin hyperemia be active the same measures are employed as in the case of hemorrhage. If the hyperemia is passive and due to central circulatory disturbances, remedies suitable for these conditions are indicated (such as a milk-diet, strophanthus, etc.), with the avoidance of hot baths and various thermal excitants. Bromids and arsenic also are indicated. The cold douche is applicable at the onset of the passive and neurasthenic forms, with the hope of preventing their full development. If the vertigo be due to local anemia, it is best treated by means of tonics—iron, iodids, kola, caffein. In case of inflammation of the internal ear, pilocarpin may be employed at first; quininand strychnin also are useful. If a syphilitic origin is suspected, specific treatment should be employed. Quite often labyrinthin vertigo is due to mechanical causes—a blow, deglutition, centripetal compression, mastication, congestion, etc. The best remedy is quinin sulphate—given at first in doses of three grains, and after the lapse of a few days of four grains, thrice daily. After an intermission the medication is resumed, notwithstanding ringing in the ears. In addition general sedative treatment may be employed. Air-douching and paracentesis of the tympanum may af-

ford relief. In nervous patients cold douching accelerates recovery. When infectious diseases and toxic conditions are attended with vertigo and deafness, appropriate measures should be directed against the constitutional condition. Vertigo is often a symptom of sclerosis, even in advance of deafness, and under these circumstances it may be supposed to be of gastric origin. Vertigo is often due to uterine, hemorrhoidal, pulmonary, and psychic disorders. The labyrinth, like a monometer, responds readily to variations in blood-pressure and nervous impressionability, and manifests its disturbance by vertigo, roaring in the ears, hallucinations.

The Malarial Cachexia and its Treatment.—At a recent meeting of Société de Thérapeutique, Vidal (*l'Union Médicale*, 1896, No. 24, p. 284) related the results of a clinical study of the malarial cachexia, of which the most conspicuous manifestations are pallor, especially of the face, with a bluish tint of the conjunctivæ, respiratory difficulty, edema of the legs, puffiness of the face, and distention of the abdomen, with or without ascites. The patients complain of palpitation, of cyanosis, of coldness of the extremities, and of tremor; and they are apathetic, indisposed to activity, and depressed, and suffer from profound lassitude, physical and moral. Physical examination discloses, in addition to hypertrophy of spleen and liver, pronounced hypertrophy of the heart. On auscultation, the heart-sounds are feeble and irregular, and the pulse frequent; often, instead of a systolic bruit at the apex, a murmur may be heard following the muffled second sound. These signs are attributed to a myocarditis, which, in turn, is made responsible for the symptoms of the malarial cachexia. From this point of view treatment has been directed to the heart, diuretic medication being systematically employed. In those who can tolerate it, an absolute milk-diet yields excellent results. Often, however, solid food must be allowed. If the heart is feeble or arrhythmic, a dose of fifteen drops of a $\frac{1}{10}$ per cent. solution of crystallized digitalin is given at the beginning, followed by oxymel of squill, and the salts of potassium. Each morning, for ten or twelve days, the patient takes, besides, a sixth of a grain of calomel. Under this plan of treatment the excretion of urine increases, the edema disappears, the color brightens, the action of the heart improves; and in the course of from two to six weeks the patients are free of their cachexia, and prepared for the treatment of their chronic malarial infection with arsenic, phosphates, hydrotherapy, etc.

A New Method of Preserving Anatomic Specimens.—At a recent meeting of the Société de Biologie, Melnikoff-Razvedenkoff (*Médicine Moderne*, 1896, No. 47, p. 376) described a new method of preserving anatomic specimens. The fresh organ is placed for twenty-four hours upon a bed of cotton saturated with a forty-per cent. solution of formaldehyde. Then for six or eight hours it is kept in ninety-five per cent. alcohol. Finally, it may be preserved in a solution consisting of distilled water, 100; potassium acetate, 30; glycerin, 60; or in a two-per cent. solution of formalin; or in alcohol; or in a preparation consisting of gelatin, 100 grams, dissolved in 600 grams of hot water, with the addition of 350 c.cm. of a solution of potassium acetate, then filtering and adding 700 c.cm. of glycerin.

The Metabolic Changes of Acute Yellow Atrophy of the Liver.—Richter (*Berliner klinische Wochenschrift*, 1896, No. 21, p. 453) reports two cases of yellow atrophy of the liver, both in women, and both developing in the sequence of syphilitic infection, in which he found, in contravention of general belief, no deficiency in the excretion in the urine of urea, and no increase in the excretion of ammonia. There was also an increase in the elimination of uric acid and allied substances—the so-called alloxan-bodies. The total amount of nitrogenous elimination was augmented. These results would seem to show that urea is formed in other organs than the liver in greater degree than has heretofore been believed, and that in case of destructive disease of the liver the function of urea-formation is taken up in increased measure by those organs.

THERAPEUTIC NOTES.

Orphol as an Intestinal Antiseptic.—E. Chaumier (*Therapeutische Wochenschrift*, 1895, 48) says that of all intestinal antiseptics B. naphthol has so far given the best results. Its unpleasant taste, odor, and the burning sensations in the stomach, to which it gives rise, render it difficult of administration, especially to children. Many substitutes, such as betol, salol, and salicylate of bismuth, have been employed, but found unsatisfactory.

In the intestinal antiseptic orphol we have a remedy which gives the same good results as are obtained from the use of B. naphthol, without its drawbacks. It does not produce any burning sensation, and is easily administered, even to children. In the diarrhea of children it is especially serviceable. The dose varies from one to five grams per diem for children and infants. It may be given either with milk or honey. The noticeable good effects in these cases are that the stools lose that fetid odor, watery character, and green color. The dose for adults is from five to ten grams a day. Good results have been obtained from its administration in the diarrhea of phthisis and typhoid fever in adults. In phthisical patients the colicky pains have been known to vanish, the number of stools to diminish, and the appetite to improve considerably by the use of orphol.

For Pruritus of the Scrotum.—

℞	Carbolic acid	ʒ iv
	Glycerin	f ʒ ii
	Alcohol	f ʒ v
	Water	f ʒ viii
	Mix.	

Into a glass of water as hot as the patient can bear is poured from one to four tablespoonfuls of this solution, and with the fluid gauze is saturated in which the scrotum is enveloped. The dressing is completed by means of a rubber suspensory.—Brocq, *Semaine Médicale*, 1896, No. 30.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, OCTOBER 24, 1896.

A WESTERN DIPLOMA-MILL.

"Annual Announcement of the Illinois Health University in Chicago for the year 1896" is the ambitious title of what appears from the circular to be a most barefaced and outrageous swindle. Immediately beneath the title is the distressing information that the institution is incorporated under the laws of the State of Illinois. From the amount and character of abuse that is poured out against the Illinois State Board of Health, we judge that this "University" has come into violent contact with the latter and has received such a serious blow that it can scarcely set itself right before even an undiscerning public.

The first page of the announcement contains a quotation from the "Writings of an Eminent Physician." We cannot place the excerpt positively, but we believe that it is extracted from the writings of an eclectic surgeon who has hitherto been able to circulate the productions of his pen only among his fellow paranoiacs in the Ward's Island asylum, and some of it has recently illumined the pages of "The Last Writings of a Paranoiac."

The photographs of the professors occupy a conspicuous place in the announcement, and if one may judge from appearances and costume, the majority of them have not been away from Russia, Poland, and Van Diemen's Land long enough to have been forgotten.

The milk in the cocoanut, however, is reserved to the last, and consists of advice to prospective students, course of study, and requisites for graduation, and it is to these that we wish particularly to call attention. In just these words it says: "We are opposed to the absurd, unjust, and unreasonable rules compelling students to attend a medical college before granting them the degree of M.D., and we are prepared to legally graduate men and women at home without even ever having seen them, for the sum of $75." Those who wish to apply for their degree must furnish evidence that they are of moral character (probably to satisfy the conscientious scruples of the Reverend, who is the "Prof." of anatomy and physiology) and that they have conducted a safe (*sic*) practise for a term of years. The announcement naively adds that there are many men and women in this country who are desirous of appending M.D. to their names, so as to increase their earning capacity, but they are prevented from doing so by lack of funds. To all such the advice is given that they send a dollar a month for books, to which they should apply themselves for an hour each evening during the winter, and in the meantime that they gather together the necessary $75 before spring, when the University, as an act of righteous duty and as a reward of merit, will legally confer on them the degree of doctor of medicine.

The books which such students are urged to buy are: "The Tricks, Deception, and Frauds Practised in the United States by So-called State Boards of Health and State Boards of Medical Examiners;" "Consumption; How to Beat it Scientifically;" "The Ridiculous and Absurd Means Recommended by Medical Monopoly Doctors;" "The Duty of the Clergy to Assist in Repealing Such Infamous Medical Laws as that Now in Force in Illinois." These titles will convey an idea of the character of the studies which students are requested to pursue.

It would seem unnecessary to make any com-

ment on what is so openly fraudulent as this diploma-mill. Yet we are not unmindful that there are in this vast land, as the circular truthfully says, those who would like to attach M.D. to their names, but who are prevented from so doing on account of mental and financial shortcomings. It is for these and for the originally dishonest and ignorant that the circular is intended.

There should be some means of enlightening legislative bodies who are responsible for the legal existence of such pedagogic and moral monstrosities as the Illinois Health University. They should be awakened to the fact that by chartering such an institution, they are as culpable in jeopardizing and menacing the welfare of the public as they would be if they legislated quarantine out of existence and so let in some horrible plague. In the absence of such illumination, it behooves medical men, the country over, to be watchful that no one of their community, be he ever so devoid of principle, is dragged into the net of this legalized medical cormorant of Chicago.

RECENT PROGRESS IN THE KNOWLEDGE OF HEREDITARY SYPHILIS.

IT has not yet been demonstrated that syphilis is of bacterial origin, but our knowledge of this far-reaching infection has been greatly amplified and modified by clinical and pathological discoveries, which have been made while studying the nature and course of other infectious diseases. It is now definitely known that in many cases there is an intimate association or symbiosis of many morbid states and conditions, and that syphilis pathologically modifies other morbid conditions. In its turn, its pathological developments may in like manner be acted upon by other diseases. These facts have been well presented in a short essay on hereditary syphilis and tuberculosis by Hochsinger ("Verhandlungen der Deut. Dermatologischen Gesellschaft," Vienna, 1894, pp. 335 *et seq.*), which will undoubtedly lead, in time, to a revision and recasting of all our knowledge of the pathological anatomy of inherited syphilis. He gives the history of three cases in which the symbiosis of syphilis and tuberculosis was positively proved, and these histories quite clearly show that the latter infection was the predominating one. Had not these cases been so thoroughly studied, both histologically and bacteriologically, they would, like many thousands before them, have been incontinently set down as typical examples of heredity with visceral lesions.

As a result of these studies and observations, Hochsinger concludes that a mixed infection of hereditary syphilis and tuberculosis may be found in the very youngest children, and that thus a double infection may be simultaneously transmitted at conception. These observations also show that all nodules, caseous or otherwise, found in hereditarily syphilitic infants should not be pronounced to be syphilitic gummata until it is shown that they do not contain the tubercular bacillus. In hereditarily syphilitic pneumonia there is true interstitial granulation-tissue infiltration, with perivascular cell-proliferation into the lung-parenchyma, and no tubercular bacilli.

The foregoing considerations very clearly emphasize the facts that in many bad cases of hereditary syphilis there is, in all probability, a synchronous tubercular infection, and that no nodules found in the viscera, and, indeed, we may add, in the bones, joints, and skin of these subjects, should be pronounced to be gummata until the influence of tuberculosis has been excluded. Diagnoses which are based on macroscopical appearances are not reliable, since to the eye the lesions of syphilis very often resemble those of tuberculosis in a striking manner. In some nodules there has been found evidence of the action of both syphilis and tuberculosis.

In earlier days we were accustomed to speak of the cause of death of infants and children hereditarily syphilitic as due to congenital want of vitality, particularly when, at the autopsy, we found no visible involvement of an important organ. Pavloff (*Annales de Dermat. et de Syphiligraph.* July, 1895) concludes that vessel-changes are the cause of death of most hereditarily syphilitic children, and he makes the pertinent suggestion that this extensively distributed morbid condition indicates the great necessity of a general systematic treatment. It is important, in this connection, to remember that Mracek found in the viscera of eighteen hereditarily syphilitic children hemorrhages of such severity that they

constituted the active cause of death. As bearing upon Pavloff's conclusions, Bar and Tissier (*Ibid.*, pp. 1156 *et seq.*, 1895), at the autopsy of a child at term, whose parents were victims of active syphilis, found pathological changes in the veins and arteries throughout the entire body.

The histories of cases reported by Murri, Schumacher, and Goetze have shown that there is a probable etiological relation between acquired syphilis in some subjects and paroxysmal hemoglobinuria. Recent observations seem to show that the morbid combination may occur in the course of hereditary syphilis. Courtois-Suffit (*Médecine Moderne*, No. 18, March 2, 1895) reports the case of a four-year-old child born of syphilitic parents, presenting characteristic lesions of the tibia, who, during two years (third and fourth of life), suffered from attacks of hemoglobinuria, at first when exposed to severe cold, and later on even when the temperature was not low. Treatment by mercurial inunctions and the ingestion of potassium iodid caused improvement in the osseous lesions and allowed the child to escape any attacks of hemoglobinuria during a severe winter. Comby, in a later communication (*Ibid.*, No. 18, March 6, 1895), claims that he had previously pointed out this symptom as being etiologically related to hereditary syphilis. Goetze (*Berl. klin. Wochenschrift*, 1884, p. 716) reported the case of a child, nine years old, who presented structural evidences of hereditary syphilis, but whose medical history was unknown, who suffered from hemoglobinuria. The study of this interesting question has only just begun, it being yet in the stage of case-reports.

A like condition prevails as to the clinical history and the pathology of the changes and disorders of kidneys in hereditary syphilis. Hoch (*Wien. Med. Presse*, 1894, p. 1697) details the case of a typical syphilitic infant, three months old, in which, while favoring the view that the nephritis was caused by syphilis, he suggests that perhaps it was due to the action of mercurials. In this case the hiatus consists in the absence of an autopsy and of histological findings.

In a case reported by Massalongo, we find more satisfactory data (*Arch. per Scienze Mediche*, Ix and ii, 1895); the infant was six months old, born of a syphilitic mother, and it presented typical lesions. Before death it suffered from albuminuria, edema, convulsions, and uremic coma. Histological examination of the kidneys showed well-marked changes in the arteries—endarteritis and periarteritis—and thromboses, extensive interstitial nephritis, and great increase in the connective tissue, which compressed the glomeruli and produced sclerosis of the organ. The lesions resembled those of late nephritis in acquired syphilis of adults. Massalongo thinks that these visceral changes began in intra-uterine life.

With the expansion of our knowledge of syphilis as a chronic infectious disease, it seems that many surprises are in store for us. Cases reported by Hutchinson, D'Ornellas, Morgan, Elsenberg, and myself, have shown very clearly that Raynaud's and Morvan's diseases may occur in the course of acquired syphilis, and that the latter infectious process is, in all probability, etiologically related to them. Krisowski (*Jahrbuch f. Kinderheilkunde*, vol. xi, pp. 57 *et seq.*) described a well-observed case of hereditary syphilis, in which symmetrical gangrene was a prominent symptom. Under mercurial inunctions and the internal use of potassium iodid a cure was promptly brought about. Here, then, is another subject for study in the protean drama of hereditary syphilis.

Robert W. Taylor, M.D.

ECHOES AND NEWS.

A Boy's Cast-off Skin.—A Florida paper reports that an eight-year-old boy has shed his skin. That on the face came off separately, but from the neck down the cuticle moved off by way of the hands and feet without breaking.

Dr. T. Colcott Fox.—The New York Dermatological Society held a special meeting, October 19, at the New York Academy of Medicine, in honor of Dr. T. Colcott Fox, the distinguished dermatologist of London. The informal social functions were not the least enjoyable feature.

St. Luke's Consecrated.—The new buildings and chapel at St. Luke's Hospital, New York, at West 113th street and Morningside Heights, were consecrated October 17th by Bishops Potter of New York, Littlejohn of Long Island, and Huntington of Central New York.

The Jews and the International Medical Congress.—The Exhibits' Committee of the Twelfth International Con-

gress has issued a statement saying, that the Minister of the Interior has authorized the arrival at Moscow of foreign Jewish savants under the same conditions as other foreigners.

King William's Touch.—*The British Medical Journal* concludes an editorial on "Psychic Vaccination" by giving to those who look to hypnotism for healing, the advice of King William to those who came to him to be touched for the king's evil, "God give you better health and more sense."

Antipodean Legislation.—The New Zealand Government has introduced a bill which makes it the duty of the master or owner of a vessel to prevent any one affected with tuberculosis from embarking for New Zealand. Should a tuberculous patient land, he and the master are liable to a fine of £10.

Paucity of Medical Men in Russia.—M. Anitchkoff, Under-Secretary of the Ministry of Education, says that in the whole Russian Empire, with a population of 110,000,000, there are only 18,334 qualified practitioners. This gives a ratio of one practitioner to 6000 inhabitants, while in Germany the proportion is one to 3000, in France one to 1800, and in England one to 1600.

Resigns From the Army.—Dr. John B. Hamilton, Surgeon-General of the United States Marine Hospital, stationed in Chicago, has sent in his resignation to President Cleveland. Some time ago Dr. Hamilton was ordered to the Marine Hospital at San Francisco by the War Department. He objected to being transferred, and made an official protest. This protest was overruled.

A New Medical Monthly.—*Moody's Magazine of Medicine* is the name of the latest addition to the long list of American medical periodicals. It is edited by Raley H. Bell, M.D., and published in Atlanta, Ga. The plan and policy of the journal as announced in the prospectus is to interest the rank and file of the medical profession, particularly throughout the New South and West. We doubt the propriety of combining the features of a family magazine with those of a medical journal, and we question the good taste of such a frontispiece as appears in the first number.

Degenerative Changes in the Brain-cells of the Non-insane.—Dr. Robert Hutchison, in *Edinburgh Hospital Reports*, from a histological examination, finds that the brains of the sane and the insane show similar changes. With the exception of general paralysis of the insane there is little that is special to the insane pathologically. Pigmentation-cells, for example, are to be found in all sorts of people, especially after middle life. He throws doubt on the association of vacuolation of cells with epilepsy. He falls back upon the nebulous hypothesis of inherent instability of the brain.

The Marine-Hospital Service.—There will be held in Washington, D. C., on February 3, 1897, a competitive examination of candidates for appointment to the position of assistant surgeon in the United States Marine-Hospital Service. Candidates are required to be not less than twenty-one years of age, and no appointment is made of any candidate over thirty years of age. They must be graduates of a reputable medical college and furnish testimonials as to character. Full information may be obtained by addressing the Surgeon-General of the Marine-Hospital Service, Washington, D. C.

The Syracuse Medical College.—Dr. Stephen Smith of New York spoke of the new Syracuse Medical College, in his address at its opening, as follows: "The college of medicine of the Syracuse University is the child of a healthy parentage. It is the legitimate offspring of two medical schools that, in their day, made a most honorable record—the College of Physicians and Surgeons of Western New York, and the Geneva Medical College. It is gratifying to state on this occasion that this college has been one of the first to adopt a graded course of instruction, which is the most important reform yet made in the method of teaching. This has been followed by class recitations, instead of lectures, in teaching the practical branches—a change of the greatest value to the individual student. Finally, it is about to extend the term of study to four years and thus place itself in the front rank of the most advanced colleges in its methods of instruction."

Parasitic Origin of Trachoma.—*The Lancet*, September 12th, makes mention that Professor Guarnieri of the University of Pisa has published in the July number of the *Clinica Moderna* of Florence a preliminary account of his researches into the pathogenesis of trachoma. In fourteen hospital-patients he has found in the detritus obtained by energetic "raclage" of the trachoma-granulations some very small round bodies capable of being intensely stained, preferably with a two per cent. solution of magenta-red in water. They can then be recognized with a magnifying power of only ninety diameters, although they are so small that the diameter of some is between a third and a half of that of a red blood-corpuscle. Professor Guarnieri is inclined to suspect that they are of a parasitic nature and belong to the class of *Blastomycetes*, but he has not yet succeeded in cultivating them, and is still pursuing the investigation.

The Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income of one year of the bequest of the late Señor Alvarenga, and amounting to $180, will be made on July 14, 1897, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the Secretary of the College on or before May 1, 1897. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in the possession of the College; other essays will be returned upon application within three

months after the award. The Alvarenga Prize for 1896 was not awarded.

National Sanitary Association.—The second annual convention of this society was held October 13th to 15th, at Brooklyn. Among the papers presented was one on "The Municipal Control of the Consumptive," which was read by Dr. T. C. Craig, U. S. N; and one on "The Work of the Division of Contagious Diseases of the New York Health Department," which was read by Dr. Charles S. Benedict, chief of that department. Dr. E. A. Wilson, health officer of Meriden, Conn., spoke on the advisability of leaving the question of disinfection to the attending physician, although he did not favor too much reliance on them in that respect. He alluded to the fact that he found no difficulty in keeping track of cases of contagious diseases in the city or town districts under his control, but it was in the country where the danger lay. Dr. A. N. Bell discussed the value of isolation hospitals, holding the opinion that they are of minor importance. Excepting in the case of small-pox, he believed there was no evidence of the aerial distribution of contagious diseases. He believed, further, that there was no positive evidence of any disease crossing the street except small-pox. Dr. E. H. Bartley read a paper on the educational duties and privileges of Boards of Health, closing with the practical suggestion that there be a journal established which shall be the joint product of all the State Boards of Health of the country.

SPECIAL ARTICLE.

ANESTHESIA JUBILEE.

PUBLIC EXERCISES HELD IN THE MASSACHUSETTS GENERAL HOSPITAL, BOSTON, OCTOBER 16, 1896, IN COMMEMORATION OF THE FIFTIETH ANNIVERSARY OF THE FIRST PUBLIC DEMONSTRATION OF SURGICAL ANESTHESIA.

[Special Report to the MEDICAL NEWS.]

THE trustees and visiting staff of the Massachusetts General Hospital with due consideration for the importance of the event to be commemorated, arranged for the celebration of the fiftieth anniversary of the discovery of surgical anesthesia. Large imposing invitations, printed on parchment paper, were issued and distributed among the prominent members of the profession throughout this country and in Europe. The invitations happily avoid any discrimination between the various claimants to the honor of the discovery. They read as follows: "Commemoration of the Fiftieth Anniversary of the First Public Demonstration of Surgical Anesthesia at the Massachusetts General Hospital, Boston, October 16, 1846. The honor of your company is requested October 16, 1896." At the top of the invitation is the seal, and at the bottom the picture of the hospital as it appeared in 1846.

In this broad spirit the invitations were issued, although in the course of the exercises there was no concealing the fact that in the special event commemorated Morton, who gave the anesthetic, and Warren, who assumed the responsibility of allowing it to be given to one of his patients and who performed the operation, were the prominent actors in the discovery.

The guests were received by the committee in the old amphitheater, where ether was first given. It was arranged to conform as nearly as possible with the appearance it presented on that memorable morning in 1846. The original operating-table was in position, the same instruments were there, and the glass globe, through which the ether was administered. In an adjoining case was the old record-book in which the history of the patient was recorded and the account of the operation.

The book was opened to the page telling the story of this wonderful surgical operation of October 16th, but was dated Friday, September 25th, the day of the admission of the patient. He was Gilbert Abbott, a printer, who had a tumor of the neck. After a preliminary description of the case, the report goes on to say: "This case is remarkable in the annals of surgery. It was the first surgical operation performed under the influence of ether. Dr. Warren had been applied to by Dr. Morton, a dentist, with a request that he would try the inhalation of a fluid which he said he had found to be effectual in deadening pain during operations on the teeth. Dr. Warren having satisfied himself that the breathing of the fluid would be harmless, agreed to employ it when an opportunity presented, and determined to use it on this patient.

"Before the operation began, some time was lost in waiting for Dr. Morton, and ultimately it was thought he would not appear. At length he arrived, and explained his detention by informing Dr. Warren that he had been occupied in preparing his apparatus. This apparatus he then proceeded to apply, and after four or five minutes the patient appeared to be asleep, and the operation was performed as described.

"To the surprise of Dr. Warren and other gentlemen present, the patient did not shrink nor cry out, but during the insulation of the veins he began to move his limbs and utter extraordinary expressions, and these movements seemed to indicate the existence of pain, but after he had recovered his faculties he said he had experienced none, but only a sensation like that of scraping the part with a blunt instrument, and he ever after continued to say he had not felt any pain."

The guests were composed almost exclusively of members of the profession, but special honors were conferred upon Mrs. Morton, the widow of the discoverer, and members of her family, who were present.

Dr. John Collins Warren opened the formal exercises by reading the following cablegrams, two of a number, showing the widespread interest in the affair:

"CHRISTIANIA, Sweden.

"Trustees and Staff Massachusetts General Hospital, Boston:

"Best congratulations on fiftieth anniversary.

"CÆSAR BOECK."

"Boston Massachusetts General Hospital, Collins Warren:

"The Moscow Surgical Society, at a special meeting held in honor of the fiftieth anniversary of the introduction of anesthetics, celebrates the memory of Morton and Simpson, the great benefactors of mankind. It greets

the committee, and wishes it every success in its labors on behalf of science, which knows no geographical boundary.

"DIAKOW, President.

"WARNECK, Secretary."

Mr. Charles H. Dalton, president of the trustees of the hospital, then read an address of welcome, in which he said:

"It is my privilege on behalf of the corporation of the Massachusetts General Hospital to welcome you here to-day as guests of this venerable institution. Though somewhat less than a century old, the hospital is one of the earliest in the country. It has long passed its infancy and youth, and has reached a period in its life already rich in history and traditions.

"For three generations the institution has never failed to have at its service the highest professional skill in all its constantly growing departments and scientific development, and the sympathy and confidence of the public. I do not refer to this record as being in any degree peculiar to this hospital. It is, in general, the common history of all similar institutions, illustrating, perhaps, in the most sincere form, man's humanity to man. If, however, we could imagine all this record erased, if all the intelligence of the physician, the skill of the surgeon, the watchfulness of the nurse, the benefactions of the public, and, more than all, the saving of life and relief of suffering were as nought, there would still remain one page in its history which of itself alone would be more than a recompense for the loss of all the rest, inasmuch as of what was inscribed thereon, the whole world has been the beneficiary, and, incidentally, has raised the name of the Massachusetts General Hospital to an honorable distinction at home and abroad. Fifty years ago to-day in the operating-theater, sulphuric ether was first given for the prevention of pain to a patient undergoing a capital operation. This application was made by Dr. W. T. G. Morton. The experiment was a success.

"Of the infinite blessings which followed this, the greatest gift of the century to mankind, of its contributions to the relief and safety of suffering humanity, to the surer confidence and success of the physician and surgeon in his efforts for the saving of human life, and in scientific investigation, it is not my function to speak. These themes are for the scholar and scientist.

"I have simply to express to you the cordial welcome of the corporation to this celebration of the fiftieth anniversary of the first surgical operation under which the patient suffered no pain, no discomfort, no anxiety. The occasion is unique."

The first paper on the program was read by Dr. Robert T. Davis of Fall River, who was present when Dr. Morton made his famous experiment.

Dr. Davis said: "Fifty years ago to-day occurred the first authentic, unquestionable, public exhibition of anesthesia during a surgical operation. As one of the few surviving witnesses of that memorable event—the most important in surgical, and one of the most important in human history—I have been invited to state my recollections of the incidents attending it, and gladly comply with the request.

"The operation in which the anesthetic was administered was performed in the surgical amphitheater of the Massachusetts General Hospital by Dr. John C. Warren, in the presence of a number of distinguished surgeons and physicians, including Dr. Hayward, the elder Dr. Bigelow, one of the wisest and greatest men who have adorned our professorship with their multifarious gifts and accomplishments, and his celebrated son, not then arrived at the zenith of his fame. The Harvard medical class was also present.

"After some delay, Dr. William Morton appeared with his apparatus, when Dr. Warren addressed the medical class, which had not been previously notified of his proposed experiment, stating in substance that there was a gentleman present who claimed that he had discovered that the inhalation of a certain agent would produce insensibility to pain during surgical operations with safety to the patient, and he added that the class was aware that he had always regarded that condition as an important desideratum in operative surgery, and he had decided to permit him to try the experiment.

"The patient, who was a young man, was suffering from a vascular tumor of the neck on the left side, occupying the space from the edge of the jaw downward to the larynx, and from the angle of the jaw to the median line.

"Dr. Morton proceeded to apply to the lips of the patient a tube connected with a glass globe. After the inhalation had continued four or five minutes, he appeared to be asleep, and the operation was commenced and completed without further inhalation of the ether. The operation consisted of an incision about three inches in length over the center of the tumor, and through the skin and subcutaneous cellular tissue, and the removal of a layer of fascia which covered the enlarged blood-vessels. A curved needle, armed with a ligature, was then passed under and around the tumor, and considerable compression was employed. During most of the time occupied by the operation the patient gave no sign of sensibility, and appeared to be sleeping quietly. A short time before its completion he moved his head, body, and limbs, and muttered words which I could not hear distinctly, but upon recovering consciousness he declared that he had suffered no pain, but simply a sensation like scraping the parts with a blunt instrument.

"The exhibition of the anesthetic was admitted by those present to be a complete success. The operating surgeon expressed his satisfaction in these emphatic words: 'Gentlemen, this is no humbug.' From that time forward it became the practise to employ it at the hospital in all operations of importance.

"Dr. Morton continued to administer it until it was proved that it could be easily and safely administered by others. The apparatus which he had used in the first and a few subsequent operations was soon abandoned as unnecessary and a concave sponge was substituted."

The next paper was on

SURGERY BEFORE THE DAYS OF ANESTHESIA,

by JOHN ASHHURST, M.D., LL.D., of Philadelphia.

(See MEDICAL NEWS, October 17, p. 433.)

David W. Cheever, M.D., of Boston, then took for his topic:

WHAT ANESTHESIA HAS DONE FOR SURGERY.

He said:

"What victim of surgery who, under ether, sinks into a calm and dreamless sleep, during which his abdomen can be cut open, his bowels taken out, handled, and replaced, his nerves cut, his veins or arteries tied, and his skin sewed up, and who is made so absolutely oblivious as to ask on awakening: 'Are you not ready to begin?' but concedes with gratitude, on realizing the result, that this is the greatest discovery ever made for the happiness of mankind? In proportion, as anticipation is worse than reality, must be estimated the mental relief brought about by anesthesia.

"To dread the knife, to shrink from an operation, to fear pain, is there a more universal instinct? It is next to the vital instinct of self-preservation. What iron will, what previous agony must induce that fortitude which can bring the sufferer to lie down and be cut without stirring! All this is annulled by anesthesia. Anticipation is done away with, pain is prevented, shock is reduced.

"The patient consents to operation earlier; he does not wait until life becomes unbearable, but calmly contemplates surgery as the natural and easy channel of relief. Hence his chances of benefit from an operation are much increased; he averts destructive processes, shortens disease, is more likely to recover. So much is done for the patient.

"To the surgeon anesthesia gives the patient asleep, motionless, senseless. He need not hurry; he need not sympathize; he need not worry; he can calmly dissect, as on a dead body, heedful only that the etherizer is competent, the breathing and pulse watched, the operation not prolonged beyond the verge of exhaustion. The surgeon, then, can do better work; he can be more careful; he can pause and consider; he can choose his steps; he can be deliberate, if not dexterous. He can even summon the aid of the pathologist and his microscope, who, in ten minutes, while the patient sleeps, can decide the nature, the innocence or malignancy of the tumor he is removing. It is also just to believe that the moral fiber of the surgeon is less strained; judicial callousness is no longer called for; he need not steel his heart, for his victim does not feel. The tyranny of misguided conscience drove the inquisitors of the Middle Ages to rack the joints apart; so, too, the surgeon was formerly obliged to use the rack to tire the muscles and disrupt the capsule to reduce a dislocation. Now, anesthesia relaxes the muscles and manipulation rolls the bones into the socket."

ANESTHESIA IN OBSTETRICS,

was next presented by J. P. Reynolds, M.D., of Boston. He said:

"In operative obstetrics, in the high and difficult use of instruments, in the introduction of the hand for version and extraction, anesthesia resembles at all points its use in the graver procedures of general surgery.

"Would that any words of mine could bring home, as I feel it, the inestimable blessing of ether in all labor, silence groundless excuses for its neglect, and so rouse professional interest that no one should lightly forbid it to any woman in childbed!

"Only one rule governs its use. Whenever the attendant sees that the woman's endurance of pain begins to tell upon her patience and courage, the moment for ether has come. It is to be kept up so long as this need lasts; no longer."

W. H. Welch, M.D., LL.D., of Johns Hopkins University, then read a paper on

THE INFLUENCE OF ANESTHESIA UPON MEDICINE.

He claimed that in all the centuries there had been no discovery comparable to any of these great discoveries of the past one hundred years, namely, the discovery of vaccination by Jenner, the discovery of anesthesia by Morton, and the discovery of antisepsis by Lister.

His address was a plea for vivisection and animal experiment, as absolutely necessary for science. In these experiments, he said, artificial anesthesia is an important factor, and many physiological experiments could never have yielded the results they did if it were not for the use of anesthetics, especially when it is necessary that the animal should survive the experiments.

The discovery of anesthesia was made in the only way it could possibly have been made, *viz.*, by scientific animal experimentation. Sir Humphry Davy and Morton both experimented on dogs. It was a triumph of the experimental method. Later animal experimentation with anesthetics has revealed a great amount of knowledge not obtainable in any other way. The gentle killing of bacteria preserves in their bodies certain chemical substances which undergo changes in their sudden death. The great progress which characterizes the history of medicine for the past fifty years, is due entirely to animal experimentation.

The last paper was read by Charles McBurney, M.D., of New York, on

THE SURGERY OF THE FUTURE.

He said:

"We worship to-day at the shrine of the Goddess Anesthesia, whose gentle sway over the surgical world of all civilized countries has so beneficently displaced the reign of terror which existed only two generations ago. What anesthesia has done for surgery has been already most eloquently told, and we all realize that without it the best of modern work would be impossible. It seems but yesterday, and yet it is a matter of history, that the wonderful discovery of the aseptic treatment of wounds was given to us, through whose agency countless thousands of human lives have been preserved. Through these two discoveries, surgery has become a gentle art; for the agonies of operations and the fatal diseases of wounds have given way to a painless sleep, and an awakening to a safe recovery. And bacteriology, which in its infancy gave birth to aseptic surgery, has penetrated with its brilliant light a darkness which our predecessors believed would last forever.

"The surgeon can to-day prevent the entrance of sepsis through either accidental or artificial wounds, but in the

presence of sepsis already in the system the surgeon stands practically helpless. Infusion of warm saline solutions into the blood-vessels gives promise of a time when we shall withdraw poisons from one part of the body and inject life-giving fluid at another point. Already we can pronounce the dictum that death from hemorrhage is unnecessary. Saline injections not only stop the hemorrhage, but fill the depleted blood-vessels, stimulate the heart, and renew the functions of life.

"The surgery of the future attracts to its enthusiastic study and practise finer and finer men, in whose hands we may safely leave the development of our science.

"A single glance at the faces of the students who collect daily in your operating-room will show you what a change has occurred in the last twenty-five years. For this, too, we must be ever grateful to anesthesia, which, in removing the torture of surgery, has robbed it of what repelled many sensitive natures.

"And the science of asepsis, by rendering complete success in surgical work possible, will excite the most devoted enthusiasm from many scientific men, who soon would have become sick at heart over the failures of former times.

"What more attractive opportunity could possibly exist than will be offered by surgery to the well-educated, refined, able, and ambitious student?"

An original poem, entitled "The Birth and Death of Pain," was then read by S. WEIR MITCHELL, M.D., of Philadelphia.

Forgive a moment, if a friend's regret,
Delay the task your honoring kindness set.
I miss one face to all men ever dear;
I miss one voice that all men loved to hear.
How glad were I to sit with you apart,
Could the dead master use his higher art
To lift on wings of ever lightsome mirth
The burdened muse above the dust of earth,
To stamp with jests the heavy ore of thought,
To give a day, with proud remembrance fraught,
The vital pathos of that Holmes-spun art
Which knew so well to reach the common heart.
Alas! for me, for you, that fatal hour!
Gone is the master! Ah! not mine the power
To gild with jests, that almost win a tear,
The thronging memories that are with us here.

The Birth of Pain! Let centuries roll away;
Come back with me to nature's primal day.
What mighty forces pledged the dust to life!
What awful will decreed its silent strife!
Till, through vast ages, rose on hill and plain
Life's saddest voice, the birthright wail of pain.
The keener sense, and ever-growing mind,
Served but to add a torment twice refined,
As life, more tender as it grew more sweet,
The cruel links of sorrow found complete,
When yearning love to conscious pity grown
Felt the mad pain-thrills, that were not its own.

What will implacable, beyond our ken,
Set this stern fiat for the tribes of men?
This, none shall 'scape, who share our human fates:
One stern democracy of anguish waits
By poor men's cots—within the rich man's gates.
What purpose hath it? Nay, thy quest is vain;
Earth hath no answer: If the baffled brain
Cries, 'tis to warn, to punish—Ah, refrain!
When writhes the child, beneath the surgeon's hand,
What soul shall hope that pain to understand?
Lo! Science falters o'er the hopeless task,
And Love and Faith in vain an answer ask,
When thrilling nerves demand what good is wrought
Where torture clogs the very source of thought.

* * * * * *

Whatever triumphs still shall hold the mind,
Whatever gifts shall yet enrich mankind,
Ah! here, no hour shall strike through all the years,
No hour as sweet, as when hope, doubt, and fears,
'Mid deepening stillness, watched one eager brain,
With God-like will, decree the Death of Pain.

How did we thank him? Ah! no joy-bells rang,
No pæans greeted, and no poet sang,
No cannon thundered, from the guarded strand
This mighty victory to a grateful land!
We took the gift, so humbly, simply given,
And coldly selfish—left our debt to Heaven.
How shall we thank him? Hush! A gladder hour
Has struck for him; a wiser, juster power
Shall know full well how fitly to reward
The generous soul, that found the world so hard.

* * * * * *

A solemn hour for such as gravely pause
To note the process of creation's laws!
Ah, sure, He, whose dark, unfathomed Mind
With prescient thought, the scheme of life designed,
Who bade His highest creature slowly rise,
Spurred by sad needs, and lured by many a prize,
Saw, with a God's pure joy, His ripening plan,
His highest mercy brought by man to man.

The last speaker was Lord Playfair of London.

"I believe I am the only person called upon to speak," he said, "who was not informed of that fact in advance, and therefore, as I am unprepared, what I have to say will be very brief. I feel a great pleasure at being here, because I have taken a deep interest in each step in the discovery of anesthesia.

"I remember well how we welcomed the news from America. One of my most intimate friends was Sir James Simpson, who was not a rival, but a colleague.

"Let me say here that there is no jealousy in regard to this discovery. It is undoubtedly due to the United States.

"The man entitled to the right of discovery is the man who realizes it to the world. The credit of this discovery is undoubtedly due to Morton in the first instance. Sir Humphry Davy made some experiments in this line, but he never realized the importance of ether."

SOCIETY PROCEEDINGS.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Ninth Annual Meeting, held in Richmond, Va., September 22, 23, and 24, 1896.

(Continued.)

A. H. CORDIER, M.D., of Kansas City, Mo., read a paper on

MOVABLE KIDNEY; LOCAL AND REMOTE RESULTS.

He drew the following deductions: (1) A movable kidney often produces a dilatation of the stomach, with all

the accompanying symptoms of a disease of that organ. (2) It is a fruitful source of gall-stones, because of the pedicle producing a partial obstruction of the common duct. (3) The bending of the ureter often gives rise to a hydronephrosis. This, in turn, is sometimes converted into a pyonephrosis. (4) It may produce death by causing a torsion of the vessels and ureter. (5) By dragging on the abdominal aorta and kinking the vena cava a condition simulating an aneurism of these vessels may be produced. (6) Pain which is referred to the region of distribution of the spinal nerves is often induced by a movable kidney's disturbance of the abdominal brain. (7) A general nerve-exhaustion (neurasthenia) is often induced by the interference of this condition with digestion, assimilation, and elimination. (8) Nephrorrhaphy is a safe and effective surgical procedure. (9) All cases of movable kidney, if accompanied by symptoms pointing to the kidney as their source, should be operated on. (10) In summing up the local and remote results of this now often recognized condition, the author thinks the correctness of the deductions has been frequently demonstrated by the disappearance of each and every symptom after a restoration and retention of the kidney in its normal position. (11) The physical examination is the only trustworthy guide in making a diagnosis of movable kidney.

Hugh M. Taylor, M.D., of Richmond, Va., read a paper on

THE LIMITS OF NEPHRORRHAPHY.

He favors the classification of nephroptosis under three clinical heads: (1) Patients who have displaced kidney, do not know it and suffer no inconvenience whatever from it. This type he thinks represents by far the largest class. (2) Patients with displaced kidney, who may or may not know it, who suffer from gastroënteric discomfort, and perhaps, a long train of vague neurotic disturbances. In this type he thinks we find the largest class calling for operative interference. (3) Patients with movable kidney who are subjects of occasional, or frequent mild or severe attacks of renal crisis. This last-mentioned is, he thinks, the least frequent type met with, but the urgency of the symptoms more frequently demands operative interference.

Nephrorrhaphy, for the relief of gastroënteric disorder, is limited by our ability to tell to what extent the disorder is due to renal ptosis *per se*, or to enteroptosis, or to some one of the many well-known etiological factors of gastroënteric disorders. Nephrorrhaphy, for the relief of the condition of Deitl's or renal crisis, must be limited by one's success in differentiating between this condition and that of gall-tract, appendicular, and kidney colic, due to nephrolithiasis. He accepted as logically sustained the conclusion that the Deitl's or renal crisis is due to a kink or twist of the ureter, with retained urine in the ureter, and pelvis of the kidney. Apart from the violent paroxysms of pain (the renal crisis), the tendency of ureteral twist and urinary obstruction to induce hydronephrosis, and, in exceptional instances, pyonephrosis, rendered operative interference more imperative in this class of cases.

His protest was not against nephrorrhaphy, but only its abuse. He conceded the value of operative interference in many selected cases, but deprecated the tendency toward operative interference merely because the kidney is movable.

Dr. George Ben Johnson of Richmond, Va., had operated for movable kidney in three cases with most gratifying results.

Dr. L. H. Dunning laid great stress upon the importance of differentiating between floating and movable kidney, the former being always congenital, the latter acquired to a greater or less extent. The two principal causes of the partially fixed condition of the kidney were its position behind the peritoneum, and the fact that it had an envelope of cellulo-adipose tissue. The perinephritic cellulo-adipose tissue was composed of two parts, one fixed, the other movable. The normal kidney had a range of motion of from one-half to three-quarters of an inch in its fatty envelope.

Dr. Thos. B. Easemann of Indianapolis reported the case of a woman, twenty-five years of age, who came to him with the symptoms of appendicitis. She also had considerable albumin in the urine. Operation showed that the appendix was firmly adherent to the kidney. It required considerable force to liberate it. As soon as liberated the kidney bounded back into place as though it were rubber. The appendix was removed, the albumin in the urine ceased, and the woman made an uneventful recovery.

Dr. James McFadden Gaston of Atlanta directed attention to the possibility of movable kidney being mistaken for enlarged gall-bladder. The gall-bladder is capable of being pushed back into the lumbar region, and carried around in front in just the same manner as a floating kidney.

Dr. J. S. Stone of Washington, D. C., related a case of a woman who, after the operation of nephrorrhaphy had been performed, gained twenty-five pounds in flesh. In many instances this procedure brought color back to the cheeks of patients and made them feel well.

Dr. Joseph Price said that his experience had been somewhat limited in operating for movable kidney. The improvement in the condition of patients so operated upon was rapid, but there was such a thing as operating too much in these cases.

Dr. J. Henry Carstens of Detroit said, the line should be drawn between movable and floating kidney. The trouble which arose from floating kidney consisted of a twisting of the ureter and consequent obstruction.

W. E. B. Davis, M.D., of Birmingham, Ala., read a paper on

TREATMENT OF PERIUTERINE SEPTIC DISEASES.

Only recently has the extremely radical procedure of hysterectomy been practised in this country for septic diseases of the internal genitals. A wave, which had its origin in Paris at the hands of Péan, aided by Richelot, Segond, Jacobs, and others, reached our shores three years ago, and has found a considerable following among our leading operators. The claim is made that there is no use in leaving the uterus after the removal of the ap-

pendages; in every operation for septic diseases of the female generative organs, which demands the removal of the tubes and ovaries, hysterectomy should also be performed, unless there are plain contra-indications forbidding it. It should be the aim of the surgeon to preserve everything consistent with thorough surgical work, and not to sacrifice important organs because it can be done with only a small mortality. The sexual life of the woman is very much better preserved by leaving the uterus, and the mental effect is also much better. A slow convalescence, or even a second operation, is preferable to its removal unless very much diseased. As stated by Dr. Davis at the last meeting of the American Medical Association, he could not agree with Dr. Sutton and others that pus in the tubes was due to gonorrhea in seventy-five per cent. of cases. He thought that puerperal infection was the cause of more than fifty per cent. Tubercular infection was rarely the cause, and was not so important as had been claimed. However, the importance attached to gonorrhea was against the argument for the removal of the uterus, as the infection from this source was not deep and could be removed with the curette. Because some patients were not completely cured by the removal of the appendage, was no argument for hysterectomy in every case where the bilateral operation was required; for nearly all these could be relieved by a thorough curettage.

Vaginal incision for the drainage of pus in the pelvis, not confined to the tubes, was a most valuable method of treatment in a well-recognized class of cases, and had been practised for a long time with gratifying results. A large number of these cases required no further surgery. More recently large pus-tubes and ovarian abscesses had been incised and drained through the vagina with permanent recoveries in a large proportion of cases. The uterus should always be curetted at the same time. These were the very cases where the vaginal operation and hysterectomy had been recommended so highly by the French surgeons. Yet a considerable percentage of these cases could be relieved by vaginal incision and drainage. The object of the surgeon should be, not so much toward still further reducing the death-rate from the operation, but to relieve the cases and preserve, as far as possible, organs which had so much to do with the woman's health and happiness.

L. H. DUNNING, M.D., of Indianapolis, read a paper entitled

SHALL HYSTERECTOMY BE PERFORMED IN INFLAMMATORY DISEASES OF THE PELVIC ORGANS?

The author discussed only diffuse pelvic inflammation.

He recognized the utility of hysterectomy in a small percentage of cases of bilateral suppuration of the tubes and ovaries in which the uterus is distinctly septic, and in cases of septic uteri, which cannot be cured by other means after bilateral salpingo-oöphorectomy.

He opposes hysterectomy as a rule.

E. F. FISH, M.D., of Milwaukee, Wis., read a paper entitled

SHALL THE UTERUS BE LEFT IN SITU IN EXCISION OF THE ADNEXA?

He argued against all operations which leave a degenerated uterus, such as Hegar's, Tait's, Martin's, and Robinson's, except under extreme conditions, and concludes thus: (1) That whenever it becomes necessary to excise the uterine adnexa, if the uterus is sound, leave it. (2) Whenever we excise the tube and ovaries, and the uterus, though in a pathological condition, in our judgment will yield to treatment, leave it. (3) Whenever it is necessary to do an abdominal hystero-salpingo-oöphorectomy and the cervix is healthy, do a supravaginal amputation, as this leaves the vaginal vault intact. (4) Whenever it is necessary to do a supravaginal amputation, suspend the cervix to the stumps of the broad ligaments, or anchor it to the abdominal wall, to prevent prolapsus vaginæ. (Baldy.) (5) Whenever it is necessary to do a general ablation, and the cervix uteri is unsound, take the entire organ because of the danger of carcinoma. (6) Whenever a subserous or insterstitial myoma can be removed without too great damage to the uterus, do a myomectomy and leave the organ. (7) Whenever we excise the appendages and leave the uterus, ventral fixation is not an unsurgical operative conclusion. The author's reasons for leaving the uterus were: (*a*) That it helps to maintain the woman's sexual integrity. (*b*) It relieves the patient of much mental strain, and is a prophylactic measure to neurasthenia, melancholia, and insanity. (*c*) It tends to maintain the family ties unstrained. (*d*) It obviates the possibility of vaginal hernia, cystocele, and protocele, and delays vaginal atrophy, and last of all, it holds up and prevents shortening of the vagina.

A spirited discussion followed the reading of the above three papers.

J. W. LONG, M.D., of Richmond, Va., contributed a paper entitled

DYNAMIC ILEUS.

The following is a report of one of Dr. Long's cases: Mrs. C., was brought to him on May 27, 1896. She is twenty-one years old, married three years, but never pregnant. It was with great difficulty that she could be induced to have any local treatment or even take her medicines. Early in the April of this year, the patient had malaria, followed by delayed menstruation, pelveo-abdominal pain, and obstinate constipation. The malaria and menstrual disturbance yielded promptly to treatment, but the abdominal pain continued, and gradually the ileus symptoms became more and more pronounced. After exhausting every other measure to move the bowels, the patient was given chloroform, and by means of a Rickett's tube he succeeded in washing away a quantity of fecal matter. There was no improvement, and a marked degree of tympany supervened. When she was brought to the hospital, there had been no movement of the bowels for four weeks, fecal matter being washed away with the colon-tube while the patient was anesthetized. The history justified the diagnosis of intestinal obstruction, while the urgent symptoms demanded an immediate operation. The abdomen was opened by a median incision. No mechanical obstruction could be found, although a careful search was made along the whole

length of the intestine. The bowel was moderately distended with gas and congested. At three points, two in the ileum and one in the sigmoid flexure, the canal was constricted sufficiently to constitute obstruction. In the ileum, one of the constrictors was about fifteen inches from its lower end and six inches long, the other was near the jejunum and about four inches long. The lumen was not entirely closed at either point, but was greatly reduced, being less than half the normal size, while the diameter of the remaining portions of the bowel was increased on account of the distention with gas. No peristalsis was observed, but the contracted portions could be dilated by "milking" the intestinal contents along. In the sigmoid, the limitations of the contracted portion were not so sharply defined, but the lesion was just as evident. The walls were thickened and the caliber much diminished. Incidentally, a small ovarian cyst on the right side was discovered and removed. As the intestine had been handled a good deal, the abdomen was flushed with normal salt solution. The incision was closed with two tiers of sutures, silk for the peritoneum, and interrupted silver wire for the remaining layers. The recovery ere most satisfactory in every way. The bowels responded to the usual laxatives and enemas on the second day, and from the first to last there was not a hitch in her convalescence. The patient left the hospital in four weeks, and three weeks thereafter took a trip to Alabama. There could be discovered no evidence of lead or ptomain poisoning.

B. M. Hypes, M.D., of St. Louis, read a paper on

SPONTANEOUS RUPTURE OF UTERUS DURING LABOR AT TERM, WITH SPECIMEN.

Mrs. O., aged thirty-one, of German parentage, general health good, previous to birth of first child. No history of any constitutional disease. After the birth of her first child, which lived but a few minutes, she suffered for six weeks from a severe case of metro-peritonitis. For the next few years she was a sufferer from general debility, impaired digestion, and a "sore spot" in the hypogastrium. Four years from the birth of her first child she again became pregnant. During gestation, her general health was much improved. She exhibited no functional disturbances; her only complaint was the sore spot over the fundus of the uterus and to the right of the median line. Labor pains began September 16, 1895, at 10 P.M., at full term. The family physician was called; found labor in progress, vertex presentation, with normal condition of mother and child. The pains were slight and progress slow. At 2 A.M., September 17th, he gave a dose of morphin and went home. At 9 A.M., upon his return, he found the patient comfortable, with occasional slight labor pains. He left the house with injunction to call him when signs of labor became pronounced. Patient remained quiet during the day. Suddenly, at 3 P.M., she was seized with violent vomiting, and the usual symptoms of abdominal shock. The family physician was at once sent for, and upon his arrival at 4 P.M. found her in complete collapse, with convulsive seizures. The patient had suffered spontaneous rupture of the uterus. He at once dispatched for surgical aid, but by the time the surgeon, Dr. Meisenbach, arrived, the patient was moribund. Laparotomy was hastily performed, and the child, which had escaped entirely into the abdominal cavity, was extracted from a mass of blood and amniotic fluid. It had ceased to live, and continued efforts at resuscitation failed to cause it to breathe. The child was fully developed, male, weighed six pounds, and was eighteen inches long. The uterus, when removed from the body, presented the following condition: A rupture through fundus, superiorly, extending half an inch from the entrance of one tube to an equal distance from the entrance of the other; the walls, at place of rupture, were comparatively thin. Placenta located at middle third of uterus, anteriorly, and to the right, where the walls were much thickened. Vaginal portion of the cervix almost obliterated as at term, and dilated for the ready admission of two fingers. The lower zone of the uterus exhibited no thinning or formation of Bandl's contraction-ring; no disease of tubes, ovaries, or placenta. A microscopical examination was made soon after rupture, and revealed fatty degeneration of tissue at point of rupture. The points of unusual interest in the case are the cause of the rupture, and its location at the fundus uteri.

Edwin Ricketts, M.D., of Cincinnati, O., read a paper entitled

PORRO'S OPERATION AT OR NEAR THE FIFTH MONTH FOR SMALL FIBROID OF CERVIX, ACCOMPANIED BY HYDRAMNIOS AND TOTAL RETENTION OF URINE.

The author reported the following case: Mrs. M., white, aged twenty-six, of short stature, mother of two children of six and three years of age, with an abortion at eight weeks early in 1895, no specific history. From January 10, 1896, she had no desire to urinate, nor could she void a drop of urine without the aid of the catheter. On February 23, 1896, she had severe labor pains lasting thirty-six hours, and accompanied by slight hemorrhage, the right portion of the cervix being soft and the left hard, which condition was also present at the time of operation. During April and until May 22d, the date of operation, she was very tender over the lower part of the abdomen, and at times had a temperature above 100°, with a pulse running from 90 to 100. On May 22d her abdomen was found to be larger than it should be at full term, which was due to the hydramnios present. There was no difficulty in moving the fetus freely in the abdominal cavity, so thin was the uterine wall. It was considered unwise to delay surgical interference, and a Porro operation was therefore performed under as strict asepsis as the circumstances would permit. After the abdomen was opened, Dr. Ricketts passed his hand down into the pelvis, breaking up the pelvic adhesions. Upon the delivery of the fundus of the impregnated uterus through the abdominal incision, a rubber ligature was thrown around it, low down and tight enough to control any hemorrhage which might occur. The fluid which escaped, upon opening the uterus, surpassed in amount any he had seen delivered per viam naturalem. After carefully sponging the parts, the wire was tightly adjusted below the rubber ligature by means of the Koeberle clamp, and the rubber ligature then removed. After the delivery of the placenta

the fundus was amputated, leaving the ovaries and tubes intact. The abdominal wound was closed with silkworm-gut sutures, without stitching any tissue to the stump below the wire. No drainage-tube was used. The extra-peritoneal part of the stump was dressed with gauze, moistened in glycerin and tincture of iron, the stump being held up by the double-hooded pin of Tait. The placenta and fetus were small for a gestation of nearly five months, and the cord was tied in almost a hard knot —harder than any he had seen. The fetus had marked cyanosis and gasped but once. Recovery of the mother was satisfactory.

H. W. LONGYEAR, M.D., of Detroit read a paper on

TREATMENT OF PUERPERAL INFECTION.

He spoke of the treatment of infection from abortion and from childbirth at full term, and presented an instrument for use in removing the remains of secundines from the uterus, designed by him. He also exhibited a self-retaining drainage-tube of his own invention. He reported two cases of puerperal infection treated successfully by the use of diphtheria antitoxin serum. He condemned the performing of hysterectomy for puerperal septicemia, except in very exceptional cases.

WM. G. MYERS, M.D., of Fort Wayne, Ind., read a paper entitled

ATRESIA WITH RETENTION OF THE MENSES: TREATMENT.

He reported two cases of atresia, one with absence of the vagina and uterus, and the other with retained menstrual fluid. The last was operated upon successfully. He believes that in the case of atresia of the vagina, with retention of menstrual fluid in the uterus, an operation ought to be completed at one sitting, adopting the direct method.

JOSEPH PRICE, M.D., of Philadelphia, delivered the President's address on

PRINCIPLES AND PROGRESS IN GYNECOLOGY.

GEORGE H. ROHE, M.D., of Sykesville, Md., read a paper on

SOME CAUSES OF INSANITY IN WOMEN.

At the period of puberty menstrual derangements are not infrequently causative of mental disturbances, which do not yield until the menstruation becomes normal. In the puerperium, insanity is dependent upon septic absorption, or the consequences of other morbid conditions of the reproductive organs. Lactational insanity may be due to physical exhaustion, but in some cases pathological conditions of the genitals or of the breast seem to have an etiological relation. At the menopause the disturbances of nutrition, associated with the arrest of menstruation, often produce insanity, and in many of these cases there will also be found abnormal alterations of the reproductive organs. The insanities following gynecological operations are either due to septic conditions, or are merely due to the rapidly induced menopause. Their frequency has been much exaggerated.

WALTER P. MANTON, M.D., of Detroit, Mich., read a paper on

THE RELATION OF VISCERAL DISORDERS TO THE DELUSIONS OF THE INSANE.

That the delusions of the insane are often an expression of somatic peripheral irritation has long been recognized, but observation leads him to believe that the importance of these mental manifestations, as indices of bodily suffering, was frequently ignored as a mere phase of the brain-disorders, especially in the instance of supposed fancied visceral disturbances.

He reported interesting cases. In each of the patients the delusions referred chiefly to the abdomen, and in each an abnormal condition of some of the viscera was found, but a condition in which the early intervention of surgery would have afforded great, if not permanent, relief to the sufferings of patients. Laparotomy, in properly selected cases of the insane, in whom visceral delusions are a pronounced and constant feature of the mental disorder, was not only justifiable in his opinion, but urgently demanded in the interest of the patient.

DAVID T. GILLIAN, M.D., of Columbus, O., read a paper entitled.

OÖPHORECTOMY FOR THE INSANITY AND EPILEPSY OF THE FEMALE: A PLEA FOR ITS MORE GENERAL ADOPTION.

He showed that oöphorectomy was a logical and legitimate operation for the epilepsy and insanity of the female. Insanity is hereditary, as is also epilepsy. They constitute the greatest curse to humanity. He would limit the operation to those in whom the malady appears in some way to be connected with or dependent on sexual disturbance. He would go further and include all who were willing to undergo the operation to save themselves and their offspring from the miseries which awaited them.

J. F. BALDWIN, M.D., of Columbus, O., read a paper on

TREATMENT OF THE STUMP TO PREVENT ADHESIONS.

He estimated that about one per cent. of all cases operated upon die from intestinal obstruction, the result of adhesions to the stump. To diminish as much as possible the danger of adhesions, he recommended the careful closing in of stumps by a peritoneal flap, and described the method of securing this flap. In cases where the pedicle is, after a simple ovariotomy, not too large, he recommended that the pedicle be so ligated that the ends of the ligature were on the anterior face of the pedicle; that the ends of the ligature be then carried across the face of the stump, down and through the broad ligament, transfixing the ligament from behind forward. The ligatures should be passed through, about half an inch apart. As the ends are drawn through and tightened, the raw end of the stump is rolled down and under the broad ligament, so as to be entirely protected. He used this method in a large number of cases, and with entirely satisfactory results.

THOMAS E. MCARDLE, M.D., of Washington, D. C., read a paper on

ABDOMINAL SECTION FOR TUBERCULAR DISEASE.

The treatment of tuberculosis of the vulva, vagina, and

cervix, did not come within the scope of the paper. The destruction of the tuberculous focus by fluid or solid caustics had been advocated by some surgeons, and if these means were not satisfactory, extirpation of the part was recommended. We had a very efficient means for the removal of the tubercular ulcers of the vagina and vulva in the application of the tincture of iodin. They rapidly disappeared under its use. In case of failure, however, excision could be practised. When the cervix is involved, and not the body of the uterus, the method of treatment advised for the vulva and vagina should be given a fair trial, but if they prove ineffectual, no time should be lost in amputating the cervix. When the endometrium is involved, there is a diversity of opinion as to the best method of procedure. It has been recommended first to curette the organ and remove all evidence of disease. The iodoform suppositories are introduced into the uterus. If there should be a recurrence of the trouble, removal of the organ is advised. Having once ascertained the existence of tubercular disease in the uterus, it is our duty to look for a similar condition in the tubes and ovaries, and, if found, it behooves us to waste no time in curetting the uterus and treating it with iodoform, but to proceed at once to the performance of an abdominal section for the removal of the uterus, tubes, and ovaries. This heroic method of treatment is advocated in primary disease of these organs. In cases complicated with tubercular peritonitis, there would be no special danger in removing the tubes and ovaries. We all know how many cases of that disease have been cured by section and drainage. We could then curette and treat the body of the uterus.

Charles A. L. Reed, M.D., of Cincinnati, O., read a paper on

MELANO-SARCOMA OF THE FEMALE URETHRA; URETHRECTOMY; RECOVERY.

Mary E. Y., aged sixty-four, single, was brought to his private hospital December 3, 1895. The patient had had no previous serious illness. There was no history of tuberculosis or syphilis in the family. The virginal condition of the genitalia precluded the supposition of venereal infection of any character. Her general health was good, although there was some emaciation about the neck and breasts, the latter of which were flabby—changes no doubt incident to age. Careful examination revealed no diseased conditions about either the lungs or heart. Careful palpation and percussion of the abdomen yielded negative results. About eight months previously—*i.e.*, in April, 1895—she began to notice some pain accompanied with blood on micturition. This was shortly followed by a more or less constant pinkish discharge from the genital fissure. The self-examination which followed revealed a tumor at the meatus urethræ. This tumor continued to increase in both size and hemorrhagic tendency until she was prompted to consult Dr. Morris, who curetted the neoplasm thoroughly, and treated it with styptics. When the patient came under Dr. Reed's care, he found a black lobulated and eroded mass, about three centimeters in diameter, separating the labia majora. The orifice of the urethra was in the very center of this mass. A careful vaginal examination was made at the time, as the virginal structures, present in their integrity, rendered such an operation very painful. Operation was done the next day, December 4th. The small blade of a Jones' speculum was introduced; the patient being in the Simon's posture, the urethra was by this means exposed in its entire length. A longitudinal incision was made through the mucous membrane along the dorsum of the urethra, from a point where the presenting part of the mass was eroded to the base of the bladder. Another incision through the mucous membrane was made at right angles to the foregoing at a point far enough above the eroded mass to insure healthy tissue. The mucous membrane was then dissected back in two lateral flaps, and the urethra was enucleated. The urethra was found to be distinctly conical in shape, the base of the cone being at the meatus, the apex at the bladder. Care was taken to dissect out the canal to a point manifestly above the zone of malignant involvement. When this point was reached, but a slight distance from the bladder, the canal, with the neoplastic walls, was excised. The cut margin of the cystic segment of the canal was seized at various points in its circumference by Kocher's forceps, brought down by gentle traction, and fixed by interrupted sutures of silkworm-gut to the vaginal mucous membrane. A self-retaining catheter was inserted, and the patient was put to bed. The sutures were removed on the eighth day. The catheter was dispensed with on the twelfth day. The patient sat up on the fourteenth day, when she found that she could retain her urine and void it at will. She was dismissed December 21st, entirely healed. She remained in good health until the 1st of July following—seven months—when she again summoned Dr. Morris because of some gastric symptoms. He found her suffering from persistent vomiting, and with a large mass in the epigastrium. This mass rapidly increased in size until it occupied all the area between the navel and the breast-bone, its nodular characteristics becoming more and more pronounced. She died of exhaustion July 14, 1896, having had no recurrence whatever of the urethral trouble. No autopsy was permitted.

J. B. Murphy, M.D., of Chicago, addressed the Association on

THE SUTURE OF LARGE VESSELS INJURED IN OPERATIONS.

His own researches and operative work lead him to believe that, where a large vessel is injured in an operation by a transverse division, not exceeding two-thirds of its circumference, the surgeon can resort to immediate suture without resection, and, if the field of operation be aseptic, can feel more certain that he will have union of the vessel and continuation of the current than he could where he sutures the intestine as for the resection of the bowel. He believes from his observations that the chances are better with the suture. The importance of this concerned surgeons more in the treatment of aneurisms. Coming to the question of stab- and bullet-wounds of the extremities, he said there was a great field for improvement in our past operative work. Formerly, we ligated vessels, and when this was done the inevitable result was death of the limb. He believes that now such limbs can

be uniformly saved, particularly in the aseptic cases. With his present method of suturing large vessels, he is not afraid to suture any vessel in the body, feeling confident that adhesion or union will take place.

W. G. Macdonald, M.D., of Albany, N. Y., read a paper on

CONTUSIONS OF THE ABDOMEN.

Contusions of the abdomen are always grave injuries. The question of surgical intervention, although much discussed, cannot be regarded as satisfactorily settled. Seven cases of traumatic rupture of the stomach and small intestine are reported. Two operations were undertaken, one recovery, one death the eighth day after operation from second rupture. All the inoperative cases died. Reference is made to the general absence of evidence of contusions in the abdominal walls, when serious visceral injury has occurred. Very slight causes, particularly if the intestinal canal is distended with fluids, may produce intestinal rupture. The early symptoms of intestinal laceration are not always distinctive. An analysis of two hundred cases of intestinal laceration, as associated with abdominal contusion, was made with a view to determine the symptoms. The following topics are considered the important ones: History of the nature of the injury, shock or collapse, pain, vomiting, pulse, temperature, and physical signs. That careful investigation of a given case will usually show sufficient symptoms to make an early exploratory abdominal section imperative.

The following officers were elected: President, Dr. James F. W. Ross, Toronto, Canada; secretary, Dr. Wm. Warren Potter, Buffalo, N. Y.; treasurer, Dr. X. O. Worder, Pittsburg, Pa.

The next meeting will be at Niagara Falls, N. Y., August 24, 25, and 26, 1897.

REVIEWS.

Diagnosis and Treatment of Diseases of the Rectum: Being a practical treatise on Fistula, Piles, Fissure and Painful Ulcer, Procidentia, Polypus, Stricture, Cancer, etc. By William Allingham, F.R.C.S., Eng., and Herbert W. Allingham, F.R.C.S., Eng. Sixth edition. William Wood & Co., 1896.

The name Allingham has been so intimately associated and for so long a time with the treatment of diseased conditions of the rectum, that an enlarged and improved edition of this work is a welcome contribution to the subject. The subjects treated in the book are attracting constantly increasing interest and more definite and scientific attention from year to year. As is truly said in the introduction, a majority of these affections are very amenable to proper treatment. The amount of relief afforded sometimes by a most simple treatment or surgical procedure is most surprising and gratifying. The importance of administering an anesthetic for the purpose of thorough and careful diagnosis is wisely insisted upon.

The various operations for hemorrhoids are fairly and fully described, but the authors reassert the opinion that the ligature is the best and safest operation for the great majority of cases. Whitehead's operation for hemorrhoids is criticised, and the assertion is made without hesitation that, though theoretically it is perfect, yet in practise it is unnecessary, and one of the worst operations for piles. The experience of many skilful surgeons in this country would hardly corroborate this opinion. Indeed, with proper modifications of the original procedure, as described by Whitehead, there is no reason why it may not be as perfect in practise as it is in theory. Even in this, the sixth edition, there is little attempt made to improve upon the early style in which it was written, and the reports of cases that are presented read vastly like advertisements of patent medicines in the daily papers. Some valuable recent contributions to the study of these diseases are not mentioned. No reference whatever is made to Howard Kelly's method of examining and treating the rectum.

A Manual of Clinical Diagnosis by Microscopical and Chemical Methods. For Students, Hospital Physicians, and Practitioners. By Charles E. Simon, M.D., Late Assistant Resident Physician Johns Hopkins Hospital, Baltimore. In one very handsome octavo volume of 504 pages, with 132 engravings and 10 full-page colored plates. Cloth, $3.50. Lea Brothers & Co., Philadelphia and New York. 1896.

The practice of medicine nowadays is a true science and art. "Diagnosis" is the most important subject of medical knowledge. Chemistry and bacteriology have recently given us aid of incalculable value in establishing a diagnosis with scientific precision. Those fruits, however, should not be left for a few experts alone, but should become the common property of the entire medical profession. With this aim in view, Simon has written this excellent work, which gives, in clear language and concise words, all the new methods of bacteriological, as well as chemical, investigations necessary for the practitioner. The chapters on "blood," "sputum," "gastric contents" and "urine" are treated in a masterful way, which can hardly be excelled. Many of the methods described are original. The illustrations, many of them in colors, are beautifully executed and of incalculable assistance to the practical worker. The book possesses the attractive features of freshness, clearness, and originality—a guaranty of wide circulation and great usefulness.

Ptomains, Leucomains, Toxins, and Antitoxins; or the Chemical Factors in the Causation of Disease. By Victor C. Vaughan, Ph.D., M.D., Professor of Hygiene and Physiological Chemistry, and Frederick G. Novy, M.D., Junior Professor of Hygiene and Physiological Chemistry in the University of Michigan. New (3d) edition. In one 12mo. volume of 603 pages. Cloth, $3.00. Philadelphia: Lea Brothers & Co. 1896.

The first edition of this book appeared in 1888 and the present is the second edition since that time—evidence that the work has been favorably received. And so it

should be, for the subject-matter treated is of the utmost importance to those interested in the intimate nature of the processes of infection. The "mechanical interference" theory of infection was never a satisfactory one, but for a time was practically the only one. During the past few years, as a result of laboratory methods of investigation, we have come to look more and more upon the clinical and pathological manifestations of infectious processes as the outgrowth of various kinds of intoxications, or, perhaps better, as in most cases the result of the direct action upon the tissues of poisons, either contained in the protoplasmic bodies of bacteria themselves, or eliminated by the bacteria in the course of their growth. In other words, infection now seems to be a chemical phenomenon. Still another important advance has been made in the means of combating these processes. It has been found that by particular manipulations animals may be rendered tolerant to the poisons of infection and that in some cases such animals contain in their circulating fluids antidotes to the poisons to which they have acquired a tolerance—in other words their body-fluids, especially the serum of their blood, are "antitoxic." This latter observation has already proven to be of the greatest therapeutic importance in certain instances, and as investigations are continued in this direction the field of usefulness will undoubtedly be broadened. To all interested in this subject, and it goes without saying that every student of medicine should be included in this category, the book of Vaughan and Novy will be of the greatest assistance. It presents in a concise way the latest views on the subject, bringing together the more important studies on which the opinions of to-day have been formulated. The chapter (Chap. II.) on the history of the development of our knowledge of bacterial poisons is especially interesting; as is also the chapter (Chap. V.) on the relation of bacterial poisons to infectious diseases. We cannot agree with the authors (Chap. VIII., p. 234) that "exposure to a given disease for successive generations is one of the factors in the evolution of natural immunity," for we do not believe that natural immunity has evolved, but rather that it is a property inherent to the idioplasm of the species endowed with it. There is no evidence of its having been acquired. To use the author's own illustration, p. 232, the chick that is immune to anthrax is in this particular just like every other chick, the world over; its immunity to this disease is a species-characteristic that is natural to it, and has probably always been so; at least there is no proof to the contrary. The community of human beings that for successive generations has been exposed to some particular form of disease and has finally become less susceptible, and, indeed, as in a few individual instances, totally immune, has *acquired* a trait that is *not* a natural characteristic of the *species*, for the balance of the species still retains its normal susceptibility to that malady. We cannot say that man is *naturally* immune to syphilis or yellow fever because we find in certain localities individuals who, because of the constant exposure of themselves and their progenitors to these troubles, have acquired a condition of increased resistance to them. To say that a person is naturally immune to a disease, because of the increased resistance afforded to him by a single non-fatal attack, would manifestly be absurd; and to admit that natural immunity, in the strict sense in which the term is understood by the reviewers, represents often all the inheritance of an induced peculiarity, is to admit in general the possibility of the hereditary transmission of acquired traits, an assumption that, according to Weismann, "has often been made but never yet proved."

To the student of medical jurisprudence the chapter (Chapt. XI.) on the importance of bacterial products to the toxicologist, will prove profitable reading.

A useful feature of the work is the full bibliography, which appears in the form of an appendix.

The Ready-Reference Handbook of Diseases of the Skin. By George Thomas Jackson, M.D., Professor of Dermatology, Woman's Medical College of the New York Infirmary and in the University of Vermont; Chief of Clinic and Instructor in Dermatology, College of Physicians and Surgeons, New York. New (2d) edition. In one 12mo. volume of 589 pages, with 69 illustrations and a colored plate. Cloth, $2.75. Philadelphia: Lea Brothers & Co. 1896.

The appearance of a second edition, is, in a measure, a refutation of any adverse criticism that may have been accorded the original. When, however, the author and publisher combine in pointing out the superiority of the rewritten work, one must judge that room for improvement had existed. In dermatology, however, changes of belief are frequent, and new names, if not new diseases, are constantly arising. The author is therefore justifiable in making alterations and improvements. In the work now presented these are noticeable at frequent intervals through the text, and also in the matter of illustration, of which some twenty new ones have been added. In the additions of new subjects are to be noted chapters on actinomycosis, angioma serpiginosum, Baelzer's disease, dermatitis repens, multiple, benign, cystic epithelioma, porokeratosis, and a number of others.

The text, as a whole, has been considerably increased.

In a "ready-reference" handbook the alphabetical arrangement has advantages over many of the older classifications and lends no element of confusion to the student in a subject which is generally supposed to be confusing enough at best. Synonyms being given, as the names occur in turn, adds a glossary-like element, which must often be of decided value. Tables of differential diagnosis scattered here and there offer a quick way of getting at points of doubt. In an appendix a long list of formulæ are given. The size, general appearance, and usefulness of the book have all been increased and Dr. Jackson is to be correspondingly congratulated.

Cheerful Philosophy for Thoughtful Invalids. By William Horatio Clarke. E. T. Clarke & Co., publishers, Reading, Mass.

This little volume of forty-one pages, as its name indicates, is addressed to those afflicted ones who have been compelled to give up the activities of life and be confined

to the narrow limits of the sickroom. Its purpose is to fill the hearts of these sufferers with courage and make them feel that their lives still may be useful not only in development of their own characters, but in influencing and blessing other lives that are brought into contact with theirs. It certainly shows that there is a bright side to even an invalid's life, and no doubt will help many such to take heart.

BRAITHWAITE'S RETROSPECT OF MEDICINE. January to June, 1896. Simpkin & Co. G. P. Putnam's Sons, American publishers.

THIS volume appears in its usual form, and covers quite fully the whole range of medicine and surgery. Considerable space is given to the antitoxin treatment of diphtheria and serumtherapy generally.

USES OF SUFFERING. By G. W. H. KEMPER, Member of the Delaware County (Ind.) Medical Society. 1896.

THIS little book of fifty-six pages, bound in cardboard cover, consists of a number of short essays, which the preface describes as a "plea for the goodness of God as manifested in disease and suffering." The publication is made at the request of a number of friends—evidently personal and admiring friends. The reader will not question the prefatory statement that they were written amid inconvenient and distracting cares, and "always within earshot of some sufferer."

A TEXT-BOOK UPON THE PATHOGENIC BACTERIA FOR STUDENTS OF MEDICINE AND PHYSICIANS. By JOSEPH MCFARLAND, M.D. Cloth, 359 pages, with 113 illustrations. Philadelphia: W. B. Saunders, 1896.

THE professed purpose of this book is to present to the student and medical body a concise account of the technical procedure necessary in the study of bacteriology, a brief description of the life-history of the important pathogenic bacteria, and a short account of the lesions accompanying the microörganismal invasion. As would be expected from the title, many interesting bacteria and protozoa are not considered.

The subject matter is divided into two parts. Part I consists of thirteen chapters, in which are considered topics on general bacteriology and technic, including the biology of bacteria, their cultivation, immunity, sterilization, disinfection, experiments upon animals, and the bacteriological examination of air, water, and soil. Part II, which occupies a major portion of the book, deals with the specific diseases and their bacteria.

These various subjects are treated in a very interesting style, especially for those who desire to acquire a general knowledge of the subject of bacteria and the *rôle* they play in the causation of disease. From the standpoint of a text-book for students, it is less fortunate. There is a looseness in the use of technical terms which tends to confusion rather than to definiteness. There are some statements of facts which may be questioned by other authorities, for example, the one referring to *Bacillus coli communis* as a *non*-motil organism possessed of flagilla. It is generally recognized that the greater number of varieties of this bacillus are motil, although less actively so than some other forms. Another unfortunate feature is the fact that special methods, which have appeared during the past two or three years, are generally omitted, while many of those contained in text-books are given.

In the description of the pathogenic species of bacteria, there is a lack of precision and uniformity of expression which are necessary for a student to easily comprehend the morphology and the essential and characteristic cultural properties of the different organisms. The illustrations are good, and many of the chapters, such as the one on immunity, are excellent. The very broad field covered in this book renders the omission of a discussion of many valuable and important topics a necessity. For this reason it is not a satisfactory text-book on technic, a complete manual of pathogenic bacteria, or a comprehensive treatise on pathology. It is doubtful if there is a need in our medical schools for a book of this kind. The author has, however, covered very well the ground intended to be discussed, and succeeded in making a very happy combination of parts of three great subjects.

OBITUARY RESOLUTIONS.

WEST END MEDICAL SOCIETY, NEW YORK CITY.

OCTOBER 3, 1896.

IT is with deep regret that we learn, at this our first meeting of the year, of the death of our esteemed fellow member, Dr. Edward S. Farrington, who died on September 7th of typhoid fever.

He was a man of fine character, scholarly attainments, and attractive personality, and was held in high esteem by all who knew him.

We feel that by his death both the Society and the individual members thereof have lost a valuable associate and a good and loyal friend.

We hereby resolve that these our expressions of regret and appreciation of our loss be spread upon the minutes of this Society, and that copies thereof be transmitted to his family and to the current medical journals.

CYRUS J. STRONG,
HOWARD GILLESPIE MYERS,
CHARLES GOOD,
EDWARD L. WILLIAMSON,
Committee.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 22, 1896, TO SEPTEMBER 28, 1896.

Captain Norton Strong, Assistant Surgeon, relieved from duty at Fort Sheridan, Ill., and ordered to Chicago, Ill., for duty as Attending Surgeon and Examiner of Recruits in that city.

First Lieutenant John S. Kulb, Assistant Surgeon, is relieved from duty at Fort Walla Walla, Wash., and ordered to Vancouver Barracks, Wash.

Captain William Stephenson, Assistant Surgeon, is relieved from duty at Vancouver Barracks, Wash., and ordered to Fort Sheridan, Ill.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

PERIPHERAL NEURITIS.[1]

BY ALEXANDER McPHEDRAN, M.D.;
ASSOCIATE PROFESSOR OF MEDICINE, UNIVERSITY OF TORONTO, ETC.

I AM of the opinion that many cases of mild neuritis pass unrecognized, being usually looked upon as rheumatism, to the poison of which no doubt, in many cases, the occurrence of the neuritis is due.

Peripheral neuritis may be isolated, confined to one or a few nerves; or it may be multiple, symmetrical in its distribution, affecting the nerves of all the extremities. These peculiarities of distribution harmonize with the pathological changes occurring in each class. In the isolated neuritis, the disease begins in the nerve-sheath, constituting a "perineuritis" at first, the inflammation extending to the nerve-fibers later. In the multiple forms, on the other hand, the nerve-fibers are themselves the seat of the primary change—a "parenchymatous" neuritis, the sheath becoming affected later. These forms of multiple "parenchymatous" neuritis are always due to some virus in the blood, an organic or inorganic chemical compound usually, which may have a special affinity for nerve-tissue, and affects the periphery of the nerves, because these parts, being farthest removed from their nerve-cells from which they derive their energy, are least able to resist it. The occurrence of the poison in the blood accounts for the wide symmetrical distribution of the disease.

On the other hand, isolated neuritis is due to some cause acting locally, and if several nerves are affected their distribution is irregular, not symmetrical. In these cases there is always a constitutional cause at work as well, predisposing to the disease. In proportion as the constitutional condition is marked, the exciting cause produces the disease the more easily, and the number of nerves affected becomes greater and the attack approaches more nearly to a symmetrical one in character.

Alcoholic peripheral neuritis is the form most often met with, but it does not occur nearly so frequently in this country as in Europe, doubtless because with us much less stimulants are consumed by women than is the case in Europe. There the women are much given to regular indulgence in the stronger spirits, usually secretly, and such drinking appears to be more productive of neuritis than indulgence in occasional "bouts" of drunkenness. In men, delirium tremens is much more common, while it is rare in women. It is difficult to explain this difference; it is attributed to the fact that men drink beer rather than spirits. With us, however, spirit-drinking is more common and delirium tremens results oftener than neuritis. The cases of neuritis I have met, in which the disease was well marked, have all been among males. The following case is a well-marked example:

CASE I.—Wm. G., aged seventy-three, clock-maker. He has always been healthy. He came from Scotland when a young man. He says he has taken one or two glasses of brandy or whisky daily since he was ten years old, but never drank to excess. For the last twelve years he has lived alone, doing his own cooking, and has taken two or three cups of tea or coffee with each meal.

In June, 1893, while walking on the street, he noticed his legs became weak and his calves and feet numb—although he was only a short distance from home, he found it difficult to get there. In a day or two he noticed a similar condition in his hands and forearms. In five days he was unable to walk. He was admitted to the Toronto General Hospital, under my care, on July 6, 1893. His condition was as follows: Complete paralysis of the muscles of the legs and feet, the muscles of the thighs retained some power. There was foot-drop—the foot extended, and the toes flexed. Sensation to touch was much lessened, but great sensitiveness to painful impressions of any kind, especially on deep pressure. There was some "pins-and-needles" and burning feeling in the feet and legs, but not excessive, although sufficient to interfere somewhat with sleep. The skin was dry and harsh, the muscles flabby and tender. Knee-jerk was lost. The hands, forearms and arms were similarly affected, but to a less degree. He could use his hands slightly, but not sufficiently even to feed himself. He was rather dull and apathetic, but healthy-looking. There was gas in the stomach and bowels. The sphincters of both bladder and anus were weak. Urine was passed every two or three hours; this may have been due to enlarged pros-

[1] Read at the meeting of the Huron Medical Association, held at Clinton April 15, 1896.

tate, but the sphincter ani was undoubtedly considerably affected, and required many months to recover. The heart was enlarged and the arteries were sclerosed. The urine was pale and of low specific gravity, so that doubtless there was more fibrosis of the kidneys than would be accounted for by senile change. There was no reaction in either nerves or muscles to the galvanic or Faradic currents. Marked atrophy of all the muscles of the extremities followed.

On September 27th, nearly three months later, the following note was made: "Is gaining some power in both hands and feet; is able to flex toes slightly, but the foot is still markedly 'dropped.' There is slight response to Faradic current in the forearms." In January, 1894, he was able to sit up, and use his hands well, but they were weak. There was no pain, sensation was good in the hands, and fair in the feet. The toes were still flexed, and pressure to extend them caused pain, especially in the calf. There was complete control over the sphincter ani, but the urine was still troublesome, although control of it was improved.

He left the hospital the following spring considerably improved, but still unable to walk. He could stand with support, but the extension of the toes gave him pain in the feet and calves.

In this case the "pins-and-needles" sensation was not very marked for so severe a case, and there was not so much loss of mental power as is usual in alcoholic multiple neuritis; there was some dulness and apathy, but apparently no more loss of memory than age would account for. Otherwise the symptoms were very marked and typical. The weakness of the sphincter ani indicates that the neuritis extended into the lower part of the spinal cord. As he lived alone, confirmation of his statement of the quantity of spirit he took daily could not be obtained. He always told the same story, however, and seemed quite clear-headed. If his story is correct, it is difficult to see how the amount of alcohol taken could cause such extensive disease of the nervous system. Many men drink much more and just as regularly without disturbance of the peripheral nerves. The same is true, however, of diseases of other organs, of cirrhosis of the liver, for example. There must be some predisposing condition or some additional poison to enable the alcohol to cause such changes.

In the case of a man who entered the Toronto General Hospital seven years ago for alcoholic peripheral neuritis, the history differed materially from the foregoing case:

Case II.—He was about thirty-five years of age; drank freely, but irregularly; was exposed to changes of weather. He had been drinking heavily and slept out all night. It was early autumn, and the nights were cool, but without frost. He found his legs weak next day, with tingling in them, and he was soon unable to walk. The hands were slightly affected. When brought to the hospital he could neither stand nor walk, but could move the feet and toes while sitting or lying. On walking with support, the walk was ataxic. There was no atrophy. His mind was not materially affected, not more so than is usual in alcoholic cases. He made a complete recovery within three months.

In the first of these cases the symptoms are typical of peripheral multiple neuritis; the numbness and "pins-and-needles" sensations, the burning pain, the tenderness to deep pressure, the weakness accounting to complete paralysis in the most remote parts, the atrophy, the loss of superficial and deep reflexes, the loss of electrical reaction, together form a symptom-group that can not be misinterpreted. The absence of a history of excessive indulgence in alcohol, and of material mental disturbance, might be considered as ground for questioning it as one of alcoholic neuritis. Arsenic is the only other cause to which to attribute such an extreme attack. The mental apathy and the diminished pain discriminate this case from arsenical cases, as will be seen in the following examples of arsenical peripheral neuritis:

Case III.—A man somewhat over sixty years old had a rather deeply seated tumor below the left parotid region, which a so-called cancer-doctor pronounced a cancer, and applied a plaster. The plaster was reapplied several times at intervals of two or three days, followed by poultices. By this time numbness, with painful "pins-and-needles" sensations, appeared in the fingers, soon followed by similar signs in the feet. Weakness followed, and in a few days he was unable to walk or help himself. The numbness, pain, and tenderness also grew much worse. This was the history he gave when received into the hospital about two weeks after the appearance of the symptoms. His condition then was one of utter helplessness. The muscles of all the extremities were much atrophied, the atrophy being more marked in the feet and legs than in the thighs; and in the hands and forearms than in the arms. Ordinary sensation was lost in the feet and hands, and greatly blunted in the proximal parts of all the limbs, but there was great sensitiveness to painful impressions of all kinds. He was not able to bear even the weight of the blankets on the feet. There was a constant burning sensation in the hands and feet, especially at night, so that opiates were necessary to secure sleep. The skin was glossy, and desquamated rather freely, these changes being most marked in the peripheral parts. There was great sensitiveness in the muscles to deep pressure. The mental condition, in contrast to the alcoholic cases, was clear and active, as in health.

There was very little improvement for three

months. After he was able to stand, the feet were so tender that he could not walk, and the hands so tender that holding a cup to drink was painful. The foot-drop was not nearly so marked as in Case I. He left the hospital able to walk and to attend to his dress and other wants, although with much pain and difficulty. He returned some months later to have the tumor treated, considerably improved, but still far from well. The ultimate result I am unable to give, as he has been lost sight of.

Case IV.—A young man, aged twenty-two, blacksmith, entered the Toronto General Hospital September 29, 1894, under the care of Dr. J. L. Davison, who kindly permitted me to see the case. At five o'clock on the morning of September 8th, three weeks before admission, he ate some pie in the pantry at his boarding-house. Half an hour later he became nauseated, and on inquiry found that the pie had contained a large amount of "Rough on Rats," a mixture consisting of about fifty-per-cent. arsenious acid, which had been placed in the pantry to poison rats. An hour later he began vomiting, without straining. There was no pain but considerable depression with free perspiration. He worked until eleven o'clock. Then he sought advice, and was given emetics. He had no diarrhea. There was marked metallic taste in the mouth, no appetite. He felt fairly well next morning, and went out to sit in the sun. He soon became faint and perspired profusely. The breathing was slow. He lay down, sucked some ice, and soon revived.

At the end of the first week a tingling sensation began in the hands and feet; a few days later, trembling at the knees, with much weakness. He found it difficult to hold a cane. Hands and feet became very tender, and weakness increased. He lost flesh rapidly, especially in the extremities. There was much burning pain, most marked in the feet, and there were darting pains down the legs.

He was able to be about until September 26th, when he suddenly collapsed in the afternoon, and was unable to stand. He partially recovered in two days, and was able to stand again, but the power disappeared the next day, and he was unable to use his limbs or stand for eight months.

On admission to the hospital his extremities were much wasted. There was very little power in the arms, and still less in the legs. The skin was harsh and dry and desquamating. There was much numbness in both hands and feet. Ordinary sensation was almost lost, but there was great sensitiveness to deep pressure. Heat and cold were felt as painful impressions. All reflexes were lost. His mental condition was clear and active. Pain disturbed his nights.

The wasting, tenderness, and paralysis increased during the next few weeks, and two months later paralysis below the knees was absolute, and almost so below the elbows. The thigh-muscles were much wasted, but retained a little power. But pain was much less and only slight "pins-and-needles" sensations remained. His appetite and digestion were better. Reflexes of all kinds, including electrical, were, of course, absent.

Six months after poisoning improvement began, and has continued steadily since, so that now, eighteen months after taking the arsenic, he may be considered quite recovered. There is still slight numbness in fingers and toes, and the knee-jerk is absent. The muscles of the anterior tibial region of the right leg are still weak, and have not regained their full size. They react only to a strong current (Faradic). In walking the foot is easily turned under him, and he cannot raise the toes freely. All the other muscles have completely recovered.

This is a very remarkable case of arsenical neuritis, and a no less remarkable case of recovery from arsenical poisoning. To the dilution of the arsenic with the pie he no doubt owes his escape from a gastritis that would have proved fatal.

In both of these cases the history is typical of arsenical neuritis. In recovery also their course was regular—the power of motion returned before the electrical reaction, and the electrical reaction before the nutrition. It is interesting to observe power of motion gradually being restored long before the muscles show increase in size.

These cases also illustrate the remarkable recuperative powers of nerve-tissue. There had been extensive degeneration of fibers, requiring months to become complete, followed by months of apparent quiescence, and then came the signs of gradual regeneration, requiring many months to become complete.

To these cases I shall add one of mild neuritis, probably due to arsenic taken in medicinal doses. It was a case of pernicious anemia I published in the Medical News, October 11, 1890:

Case V.—Dr. P. was extremely ill with pernicious anemia. He had been vomiting incessantly when first seen. As soon as the stomach would tolerate it he was given liquor arsenicalis, 1 minim every three hours, and this was increased gradually until he took 45 minims per day. In two months he was able to return home. He was directed to intermit the medicine for a few days from time to time, but in his anxiety to make a complete recovery, he took it continuously. In the third month of taking the medicine numbness and tingling of the hands and then of the feet began. After two or three weeks sudden advent of pain and a purpuric rash occurred. When seen about two weeks later, the anesthesia and tenderness were sufficiently marked to make the hands awkward and walking irksome. It took about three months for him to recover.

The recurrence of neuritis as the result of medicinal use of arsenic is not very rare; nevertheless,

the drug is often given even more freely than in this case without any toxic effects. The sudden onset of general pains and the purpuric rash indicate the existence of some other poison in the blood, possibly of a lithemic or rheumatic nature, and this, or the toxic agent producing the pernicious anemia, may have caused the neuritis. I have a patient under observation at present in whom peripheral neuritis occurs in connection with pernicious anemia.

Case VI.—A married woman, aged forty, of good family and personal history, has been ailing for over two years, growing gradually more anemic. She lost a daughter last year, after which her condition grew much worse. I saw her first on January 4, 1896. She was then very prostrate, her body fairly nourished, but her limbs were much wasted. She was unable to sit up. On careful repeated examinations the blood was found to contain only between 400,000 and 500,000 red corpuscles per c.mm., and hemoglobin twenty-two (Fleischl). There was some numbness with tingling of the hands and feet. The following week she had great pain and considerable swelling in the feet, the right being most affected. The feet and legs were partially anesthetic, and very tender, especially to deep pressure. It was thought at first that probably phlebitis was the cause of these symptoms, but there was no special tenderness along the course of the veins. The temperature varied from 99 to 102° F. There was some improvement in a few days, and, within a month, the pain and swelling had disappeared, but the numbness and tenderness persisted and have not wholly disappeared yet. Her general condition has greatly improved, the blood-count being now over 3,000,000 corpuscles per c.mm. Sensation is not yet normal, and the legs especially are still much wasted. She is able to walk a little, but the knee-jerk is absent, and there is no response to a strong Faradic current below the knees, and only faint response in the forearms.

The cause of the neuritis was probably the same poison in the blood that caused the destruction of the red corpuscles. I have not met with a case of multiple neuritis occurring in pernicious anemia before this one, nor have I found it referred to in the literature of that disease. It is just possible that in Case V. the neuritis was due to the poison of pernicious anemia and to the arsenic. In isolated peripheral neuritis a local exciting cause is the chief consideration, and is of importance in proportion as the neuritis is circumscribed, even in these cases, however, a predisposing condition probably always exists. Of these predisposing causes it is known that gouty and rheumatic conditions are among the most frequent. Lithemia should be added to these as probably one of the most frequent causes rendering the nerves liable to become inflamed from slight local causes, such as cold and traumatism. Patients seeking advice for "torpid" liver, dyspepsia, constipation, etc., not infrequently complain of numbness and tingling in a hand, a foot, or some other part. They are usually much concerned about these symptoms, fearing that they may be the precursors of paralysis. Lithemia is probably the most frequent predisposing condition leading to the development of inflammation of the nerves, after injury to them, as often occurs in dislocation of the shoulder.

In the treatment of this disease, the first duty, of course, is the removal of the cause—the "etiological treatment." The cause may be easily demonstrated, when, as in most cases, it is alcohol, lead or arsenic; it is more obscure in uric-acid poisoning, and in diabetes. For the neuritis we have no specific remedy. Anodynes may be required to relieve the pain. Rest and protection of the parts from injury are of importance.

Strychnin is regarded by some as a specific, and some satisfactory results are reported from its use, especially by subcutaneous injection gr. $\frac{1}{20}$ to $\frac{1}{30}$, twice daily. It favors the return of normal nutrition by stimulating the irritability of the affected muscles. Probably it also stimulates the multipolar cells of the spinal cord, so that they may impart greater energy to their fibers, and thus enable them to resist further destruction and hasten repair in those already degenerated. Electricity may, to some extent, effect the same purpose, but it is doubtful if it has any further effect than to stimulate contractions of muscles, if they react to the stimulus.

As soon as tenderness has abated massage and baths will prove useful in hastening the removal of excrementitious matter, and stimulating the nutrition by increasing the flow of blood through the affected parts.

In the later stages the rousing of the patient's latent energies and encouraging him to make voluntary use of the muscles, as far as possible, will do more to accomplish the objects in view than any other plan of treatment.

With few exceptions the prognosis is good; recovery will be long delayed in severe cases, and in a few acute cases a fatal termination occurs within a few days or weeks. In the first case I have related, full recovery did not probably take place on account of age.

Bad cases grow worse for weeks or months and then remain stationary for a time. Complete recovery requires several months.

VAGINAL SECTION FOR THE CURE OF RETROVERSION OF THE UTERUS.[1]

By HENRY T. BYFORD, M.D.,
OF CHICAGO;
PROFESSOR OF GYNECOLOGY IN THE COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO, AND POST-GRADUATE MEDICAL SCHOOL OF CHICAGO.

From the time Schuecking attempted the cure of retroversion by vaginal ligature, much ingenuity has been displayed by gynecologists in Germany in devising methods of treating retroflexion and retroversion by vaginal section.

A number of successful and unsuccessful attempts have been made to shorten the sacro-uterine ligaments by ligatures passed through them[2] by the same method; including, however, the denuded cervix in the sutures, so as to unite it to the denuded posterior vaginal wall;[3] by the obliteration of the cul-de-sac of Douglas;[4] by the same method, but passing the sutures through the cervix;[5] by suture of the ligaments themselves through an incision into the cul-de-sac;[6] and finally by suture of the ligaments through an opening made between the uterus and bladder.[7]

The attempts, however, have not proved uniformly satisfactory, since it is difficult to reach the ligaments by way of the vagina, and there is too much subsequent traction on the parts operated upon.

Mackenrodt made a median-line incision in the anterior vaginal fornix, separated the bladder from the uterus and vagina, and sutured the anterior uterine wall to the vaginal wall behind the bladder, which was displaced forward. Some vesical symptoms and recurrences of the retroversion led him to go one step farther, *viz.*, open the peritoneal cavity between the uterus and bladder, and suture the uterus direct to the vaginal walls, thus obtaining a connective-tissue union between the uterus and vagina, instead of partly peritoneal adhesions as in his first method. After operating over a hundred times, he discovered that the connective-tissue union of the anterior vaginal wall with the anterior uterine wall interfered with the development of the latter during pregnancy, to the extent of interrupting pregnancy in some cases, and of seriously complicating labor in others. He therefore declared the procedure unfitted for patients liable to become pregnant. Dührssen makes a transverse incision in front of the cervix, separates the bladder from the uterus, incises the peritoneum in a sagittal direction, and draws its edges and the fundus uteri to the vaginal edges by one or two sutures, but closes the peritoneal incision, before tightening and tying them. The fundus thus adheres to the bladder instead of to the vagina.[1]

Mackenrodt's bad after-results led some operators to return to the first method of peritoneal attachment without opening the peritoneal cavity, and determined him to stitch the uterus to the bladder only in his subsequent cases. Simultaneously, several operators began to use the round ligament as the means of support.

Wertheim[2] of Professor Schauta's clinic in four cases attached the round ligaments, one or two centimeters from the uterine end, to the vaginal edges; and also proposed attaching them to the peritoneal edges where the membrane is reflected from the bladder, but did not have much faith in the latter as a permanent cure. In one case he made a loop in the round ligament by passing a silk thread through it near the uterus, and then again through it as far away from the uterus as possible and tying it.

Bode[3] of Dresden had already performed the same operation three times, and recommends it.

Guenther[4] of Dessau put a silk suture in each round ligament near the uterus and pierced the abdominal wall over each tuberbuculum ossis pubis with the needles, and thus brought out the threads, pulled the uterus forward by them, and tied them on the skin. He had performed the operation once.

F. Kiefer[5] of Martin's Clinic in Berlin stitched together a fold of the ligament through the vaginal incision very much as Mann does through the abdominal incision. He also proposed suturing the round ligaments near their uterine ends to the abdominal walls, but his method differs from Guenther's, in that he penetrates the abdominal walls from without, guarding the point of the needle by his finger, which has been introduced through the vaginal wound, and pulls the thread down into the vagina, attaches it to the scarified round ligament, and then draws the uterus to the abdominal walls by means of it.

While performing the operations, gynecologists discovered that through the same incision adhesions could be separated, diseased ovaries and tubes resected or removed, subserous uterine

[1] Read before the Illinois State Medical Society, May 20, 1896.
[2] Byford, "Diseases of Woman," 1888.
[3] Herrick, *American Journal of Obst.*, March, 1891.
[4] Stratz, *Zeitschrift f. Geburt und Gyn.*, 1891, p. 337.
[5] Sänger, *Centralblatt f. Gyn.*, 1891, p. 889.
[6] Gottschalk, *Centralblatt f. Gyn.*, 1896, p. 417.
[7] Wertheim, *Centralblatt f. Gyn.*, 1896, p. 465.

[1] *Zeitschrift f. Geburt und Gyn.*, 1896, p. 152.
[2] *Centralblatt f. Gyn.*, March 7, 1896.
[3] *Centralblatt f. Gyn.*, March 28, 1896.
[4] *Centralblatt f. Gyn.*, February 22, 1896.
[5] *Centralblatt f. Gyn.*, April 11, 1896.

fibroids enucleated, and small omental tumors, or portions of the omentum itself, be extirpated.

Working along the same lines and at the same time with these followers of Dührssen and Mackenrodt, I had evolved a method, before the reports of the above-mentioned work were known or accessible to me, which I think places the uterus more securely in its proper position than any of them, and at the same time does not interfere with its normal mobility, nor with that of the bladder. It consists in producing limited peritoneal adhesion between the fundus uteri and the bladder, and in shortening the round ligament through the vaginal incision. The bladder-attachment acts as a safeguard, in that it insures a return of the fundus forward, while the contracting bladder is emptying itself.

The technic of the method is about as follows: The vulva and vagina are thoroughly scrubbed with soft soap, then with strong alcohol, and then with a 1–2000 solution of bichlorid of mercury. The uterus is dilated and curetted, and disinfected with mild or strong solutions according to the requirements of the case, or the notions of the operator. This preparation is necessary to prevent the infection of the connective tissue and buried ligatures.

A transverse incision, a trifle over an inch long, is then made in the vaginal wall just in front of the cervix, and the bladder separated from the uterus by the finger as far up as the peritoneal reflection. Then a longitudinal vaginal incision, about two inches long, is made in the median line from the neck of the bladder to the middle of the transverse incision. The bladder is separated from the vagina for a short distance on either side of the incision to give room for manipulation. The peritoneum is then torn across between the uterus and bladder, an intra-peritoneal pelvic examination is made, adhesions are separated, and such parts are treated or removed as may require it. The bladder-peritoneum is then seized by forceps and drawn down by successive grips, until that which lies behind the tubes can be seen. Two chromicized catgut-threads are introduced about one inch apart through this portion of the peritoneum and subperitoneal tissue as high as possible. Then the anterior surface of the uterus is grasped with tenaculum-forceps, and the fundus pulled into the vaginal wound and attached to the bladder by means of the above-mentioned catgut-threads. The finger is next hooked over the left round ligament, which lies beside the vaginal wound, a loop of the ligament drawn into sight, grasped by forceps, and pulled down until the inguinal end is taut. A catgut-suture is put through it as far from the uterine end as possible, and is made to attach it to the uterus just above the normal uterine insertion, which is easily exposed to view by the vaginal retractors. The same is done to the right ligament. The entire vaginal wound is closed with transverse sutures that reunite the bladder to the vagina, and also draw the ends of the transverse incision together, leaving one row of sutures in the median line. This lengthens somewhat the anterior vaginal wall and draws the connective tissue together in front of the cervix. A few inches of a narrow strip of gauze is placed in the connective tissue in front of the cervix to be removed in twenty-four hours, by pulling on the end which projects between the sutures into the vagina.

I have operated upon ten cases in this way, besides one case in which I merely sutured the fundus over the bladder, and in each one the uterus has remained in a normal, mobile position, without the aid of a pessary at any time. The comfort is greater, and the complaint much less than after Alexander's operation, and the patient is not conscious of a wound or sore place. In addition to these advantages we obtain, while operating, a definite knowledge of the condition of the pelvic organs and the possibility of correcting them.

The uterus has no abnormal attachments except the two points of peritoneal adhesion to the bladder, and there is nothing to fear from subsequent pregnancy.

THE DOSAGE OF NITROGLYCERIN.

By W. L. ARMSTRONG, M.D.,
of New York.

The dosage of nitroglycerin does not seem to be very clearly defined in medical literature. That poisonous effects may sometimes be obtained from small doses all observers recognize. Dr. H. C. Wood cites a case in which a single drop of a one-per-cent. alcoholic solution produced insensibility, and another case in which two drops caused complete loss of consciousness and of the pulse at the wrist. That the continued use of the drug creates a tolerance is mentioned by Dr. H. A. Hare, who says: "It is noteworthy that patients rapidly become immune to the drug, and Reading has recorded a case in which, after a year of treatment, one dram of a ten-per-cent. solution was taken daily, with good effect" (*i. e.*, six grains in the twenty-four hours). The largest recorded dose that I can find is one reported by Dr. Whittaker, in the "Twentieth-Century Practise," of $1\frac{1}{10}$

grains every three hours, or 8$\frac{4}{5}$ grains in twenty-four hours.

Nowhere in the literature of the drug do I find even a suggestion that a contracted state of the arteries produces a condition which tolerates larger doses of the drug than when the arterial walls are in their normal state. Arguing from a slightly different standpoint, the proposition may be formulated that the poisonous symptoms of nitroglycerin do not begin to manifest themselves until the drug has relaxed the arterial walls beyond their normal tonicity. In confirmation of this theory, I submit, through the courtesy of Dr. Beverley Robinson, the following three sets of experiments, which were carried out, last winter, at St. Luke's Hospital. For the smaller doses, tablets of nitroglycerin were used, and for the larger doses a ten-per-cent. alcoholic solution. This solution was subjected to a quantitative analysis by a competent chemist, and found to be of full strength.

To six patients with normal arteries and hearts nitroglycerin was administered in the dose of $\frac{1}{100}$ of a grain, every hour. After three or four doses, in several of the cases, and before the expiration of twenty-four hours in all of the cases, headache was produced. In other words, a total dosage of about $\frac{1}{3}$ of a grain in the twenty-four hours caused poisonous symptoms.

The second experiment can scarcely be called such. There was a patient in the male ward with well-marked atheromatous arteries, but no tension. He had never taken any nitroglycerin in his life, to his or my knowledge. By mistake, he was given, at a single dose, 2½ grains of glonoïn. This large dosage was followed by absolutely no discomfort whatsoever. In this case, apparently, the rigid condition of the arterial walls did not permit the nitroglycerin to produce its relaxing effect, and so no poisonous symptoms occurred.

The third set of experiments was tried on cases of marked arterial tension, the walls being free from atheroma. The first case was a man, fifty-three years of age, who had been troubled for ten years with severe attacks of asthma. The physical examination revealed loud, sibilant, and sonorous sounds, subcrepitant and moist râles over both lungs, and marked tension in the radials. The urine contained a trace of albumin, and, at times, a few hyaline casts. During twenty-five days the nitroglycerin was gradually increased, so that finally he was getting seventy-six grains in the twenty-four hours. All the signs had disappeared from the chest, the breathing was easy, there was no tension in the radials. At no time during the administration of the glonoïn did he suffer from headache or any symptom that could be attributed to the action of the drug. The medicine was then stopped, to observe what the effect would be. Within forty-eight hours he had a return of his asthma and radial tension. Another case of arterial tension was that of a man, twenty-one years of age, who had had symptoms of nephritis for ten weeks previous to entering the hospital. His urine contained ten per cent. of albumin and numerous granular casts. His radials were markedly tense, but free from atheroma. During four weeks the nitroglycerin was steadily increased, so that he finally took 125 grains (over two drams!) in the twenty-four hours. The tension had entirely disappeared, and no unpleasant symptoms had presented themselves. The final dose was eight grains every hour while awake. Upon increasing the dose to nine grains, a slight headache was produced, and the drug was pushed no farther. It should be stated that in both of these cases of high arterial tension the relaxation of the radials was obtained some little time before the maximum dosage was reached. The drug was increased from that point simply to observe the degree of tolerance.

The above results point to the following conclusions in regard to the dosage of nitroglycerin:

1. It is only when dealing with arteries in which there is no more than the normal tonicity of the walls that the drug is liable to produce disagreeable effects. Under this condition it should be administered with caution and in small doses.

2. In cases of arterial tension, the drug can be used more freely than has been customary among practitioners, the dose being proportioned to the degree of tension.

3. In cases of arterial tension, tolerance to the drug is rapidly acquired, and, by a slight increase day by day, very large doses can soon be taken with safety, the constant guide being the degree of tension in the arterial wall.

CLINICAL MEMORANDUM.

UNILATERAL PARALYSIS OF THE SPINAL ACCESSORY NERVE CAUSED BY EXPOSURE TO COLD, ASSOCIATED WITH MOTOR PARALYSIS OF THE VAGUS.

By THOMAS HUBBARD, M.D.,
of Toledo, Ohio.

Paralysis of the spinal accessory is evidenced by paresis of the sterno-mastoid and trapezius, both of which are also freely supplied with motor nerves from the cervical plexus. These muscles are weakened in power,

only the occipito-acromial fibers of the trapezius being paralyzed; according to Osler.[1] The scapula droops and rotates downward and outward, and power to elevate the arm above the shoulder is more or less impaired. Thus it is observed that, in so far as the cervical muscles are concerned, the evidences of spinal accessory paralysis are not pronounced and may be readily overlooked.

In the sub-occipital space, where the nerve emerges from the sterno-mastoid, it is quite vulnerable to cold. Compared with the facial in its temporo-maxillary portion, one would expect it to be equally susceptible to the influences of exposure. The association of progressive and complete paralysis of the spinal accessory and pneumogastric is not rare, but such conditions are nearly always central in origin, usually bilateral and permanent.

Having observed several cases of obstinate unilateral paralysis of the laryngeal muscles that could consistently be attributed to exposure to cold, the suggestion of analogy to facial paralysis has often presented itself. We must, of course, exclude all of those cases of myopathic origin in which inflammatory infiltration causes the impairment of function. Again, as McBride states, the rheumatic condition is very often a predisposing factor in transient paralysis of the intrinsic laryngeal muscles.

We would not expect to find a unilateral paralysis from exposure of the pneumogastric or its motor branches, but rather from traumatism, pressure, or chilling of the peripheral portion of the spinal accessory and consequent functional disorder of all its branches.

The following case, in which the group of symptoms pointed clearly to the condition implied in the title, recently came under my observation:

The gentleman, a druggist, of about forty years of age, returned from a two weeks' lake-trip on August 30, 1895. One week previous, while stopping at Marquette, and after several days' exposure to strong winds yachting on Lake Superior, he had severe neuralgia in the right temporal region. The following morning he awakened with strange and annoying sensations in his throat, and when he attempted to move he found that his right arm was weak, and the head seemed very heavy and inclined to fall over to the left. With assistance from his wife he dressed and went to breakfast. He soon discovered that he could swallow only with difficulty. The bolus of food seemed to stay in the lower pharynx for some time and passed into the gullet slowly. Fluids were in part returned into the mouth. At times he choked quite badly. He observed also that it was difficult for him to raise the right hand toward the mouth.

During the day there was some cough, but it was not severe at first. The patient states that he did not feel as though he had contracted a cold, and rightly, I think, attributed the laryngitis to the irritation of food and drink. His general condition was fairly good, and he continued on his lake-trip, making occasional stops. Several times he had severe attacks of choking, and gradually a mild bronchitis developed. When asleep he snored very badly. By the time he reached home he was anxious and depressed. It should be added that his habits are excellent, and there is no history indicating a rheumatic diathesis, nor malaria, nor constitutional disease.

I examined him August 30th, and found the following condition: Temperature normal, pulse about 95, stomach and bowels inactive. The urine was normal. Reflexes, including pupillary, active. Sensation, both of skin and mucous membrane, was natural. The action of facial muscles and lips was good, and the tongue was protruded vigorously, with a slight inclination to the right. The uvula was drawn over to the left side, and a contraction-dimple was observed on the left, while the right side was drawn smooth. The action of the right pharyngeal muscles was decidedly impaired. The right vocal cord was fixed in the cadaveric position, and the left made compensatory excursion sufficient to produce a fair voice. The mucous membrane over the right arytenoid was infiltrated and looked excoriated or blistered, doubtless from irritating foods. He was coughing quite badly, and on such occasions there was decided inspiratory stridor. Dr. C. L. van Pelt called attention to the fact that the trapezius and sterno-mastoid were paretic. Reaction-tests were not made, but trials of range of motion and strength located the weakness in these muscles. The arm and forearm seemed to have normal strength. The head was supported most of the time on the right hand, with the elbow rested. The mind was clear and, as stated, the voice was weak and tremulous, conversation tiring him quickly. The impaired action of the tongue was doubtless due to lack of normal support at the base. During his confinement to the house the pulse varied. At times it was as low as 50, and on excitement would run up to 95, thus suggesting that the cardiac function of the vagus was disturbed.

The treatment consisted of quiet rest, mild cathartics, bromids, and codein to quiet the spasmodic cough, and the diet was restricted to warm, bland fluids. A mild, detergent gargle was prescribed.

On the second day following, I was summoned in great haste. He had had a desperate attack of choking while taking a little plain soup. For five minutes or more, he struggled violently to catch his breath, which left him much exhausted and frightened. The bromids were increased, and nitrite of amyl was supplied to give him renewed confidence. This attack marked the critical period of his sickness, and from that day he gradually improved. For about two weeks he would throw his head over to the left with each attempt to swallow, thus rendering the palato-glossal and right pharyngeal muscles more tense. The base of the tongue was probably called into action to crowd the bolus into the gullet. He was confined in all about two weeks after he reached home, but the weakness of the throat and shoulder persisted for about a month from the date of his return home. A recent examination shows that all of the paretic symptoms have disappeared. As stated, the right vocal cord seemed to be completely paralized in so far as phonation under examination with the laryngoscope could determine, but yet there was probably some motion in ordinary speaking. This is possibly suggestive of independent but limited motor function of the pneumogastric.

[1] Osler, "Practise," p. 809.

SPECIAL ARTICLE.

LEPROSY IN BRAZIL.

By ALBERT S. ASHMEAD, M.D.,
OF NEW YORK.

Dr. José Lorenzo de Magalhaes of Brazil, who has published an interesting work on leprosy in that country, says that this disease did not exist among the natives, and that it does not exist to-day among those who are not yet mixed with the rest of civilized mankind.

Dr. Juliano Moreira, physician to the Hospital Santa Isabel, Bahia, Brazil, informs me that the natives, before the Portuguese colonization, the Tupis, Krars, the Goytacazes, the Guerens, Gucks, Parecos, the Guaycurus, Lengoas, and Arrawacks, were certainly not leprous, and that the Brazilian Indians of to-day are not afflicted with this disease.

Dr. Enrique Robelin, speaking of leprosy in British Guiana, says: "It seems that leprosy was imported by the negro slaves, among whom a leprous epidemic broke out, and as special care was taken to isolate them, the evil was limited and circumscribed among themselves. In 1831, there were 431 lepers, who were all sent to the leprosery situated on the Pomeroon River. In that place had resided since time immemorial various Indian tribes, among others were the Caraibs, the Arrawacks, and the Warrows. Disgusted by this neighborhood, the Indian tribes left the territory, except the tribe of the Warrows. What happened to both parties? The tribe of the Warrows, which remained in the vicinity of the lepers, with whom they established relations, *was infected by leprosy*. The other tribes, whom an instinct of self-preservation had induced to leave the country, and to take refuge in other districts, remained intact (Dr. Suzor, 1886)."

Speaking of the development of leprosy following human currents, Dr. Robelin says: "What means this propagation every time that new colonists came into close contact with the inhabitants? Is it heredity or spontaneity? Heredity is unable to explain this great development, spontaneity still less. These reasons are not solid, they fly in the face of good logic, and are in contradiction with the facts which we have exposed above. Hereditary diseases do not run so rapidly through the world, or through the countries."

The same contrast is offered by Brazil. Leprosy is very common in the provinces of Maranhao, Para, Pernambuco, Bahia, Rio Janeiro, and Parana; it exists also in the southern provinces of Las Minas and San Paulo. The Indians of Brazil do not suffer from it.

Leprosy, contrary to the assertion of E. R. Coni, is not called quigila in Brazil, but morfea.

Quigila, although it exists in Brazil, is far from being as frequent as morfea or lepra, and is therefore less studied.

LEPRA ANESTHETICA.	QUIGILA.
1. Vesicles presenting the character of the herpes zona or of the pemphigus, which burst spontaneously, issuing first a clear and transparent liquid, and leaving in their place ulcers which exhale a fetid and sanious pus. It is one of the characteristic symptoms of the disease.	1. Plaques of psoriasis, which at times present the aspect of ichthyosis.
2. The skin presents anesthesia almost from the beginning of the disease, and this is one of its culminant symptoms.	2. The skin presents anesthesia in no period of the disease.
3. Affection generally considered as local, but with tendency to generalization.	3. General affection.
4. It is not contagious, according to modern authors.	4. Contagious, affecting sometimes all the members of a family.
5. It appears between the ages of thirty and fifty.	5. It appears before thirty, and begins its work mostly at twenty.
6. Its average course is of eighteen years, while there are examples of twenty and thirty years' duration.	6. The course of the disease is rarely five or six years.
7. The skin of the face is normal.	7. The skin of the face, forehead, and eyelids is swollen and hardened.
8. The mucous membranes are always found intact.	8. The mucous membranes are frequently attacked.
9. The bones are eliminated entirely or carious.	9. The diaphysis of the bones of extremities disappears, molecule after molecule, by interstitial reabsorption.
10. The mouth is asymmetrical, turned to one side by the paralysis of the buccinator.	10. Symmetrical mouth.
11. Disturbance or abolition of vision.	11. Normal vision.

Ainhum was first described by Drs. da Silva and Wucherer, physicians of the province of Bahia, Brazil.

In the course of 1876, we observed a case of this affection in a Moreno, born in the island of Bourbon. He belonged to the clinic of Dr. Juan Antonio Argerich.

In this patient, the fourth toe of the right foot was amputated. We could observe the symptom-complex of this disease, such as the furrow at the root of the toe, the deformity, intense pains, and incapacity of walking.

We may therefore offer the following table of symptoms which shows strikingly the notable difference existing between the two diseases:

AINHUM.	LEPRA ANESTHETICA.
1. Affects only negroes and Hindoos.	1. Affects individuals of all races.
2. Affects only the last toes.	2. Affects all toes and fingers.
3. Hyperesthesia.	3. Anesthesia.
4. No muscular atrophy.	4. Muscular atrophy.
5. No initial vesicles, no ulcerations nor retraction of tendons.	5. Begins quite regularly with vesicles, followed by ulcerations, more or less deep, and retraction of tendons.
6. In the case observed by us, the bones were found whole, and a little more vasculated.	6. The bones are carious and fall off spontaneously.
7. There is always a furrow at the base of the fingers with thickening of the skin.	7. Never any furrow, no thickening of the skin.
8. The patient cannot walk without pain.	8. He walks without pain.
9. Vision remains.	9. It is disturbed or destroyed.
10. The finger is never in any period sphacelated.	10. Finger or fingers often so.
11. The affection is localized only in the fingers, and the prognosis is not grave.	11. The affection penetrates to the centers and is of great gravity.
12. May be cured by the amputation of the finger, and sometimes by the deprivation of the ring.	12. Always incurable.
13. No general phenomena.	13. There are general phenomena.
14. Nutrition generally intact.	14. Deep perturbances in the nutrition of the whole organism.
15. No complications.	15. Generally complicated with renal lesions which offer all the symptoms of albuminoid nephritis.

From Dr. W. Havelburg, physician to the Hospital Don Lazaros, Rio Janeiro, and director of the bacteriological laboratory, I have received a history of his hospital, which treats of the expansion of leprosy.

In the seventeenth century, or perhaps the last years of the sixteenth century, lepra appeared in Rio Janeiro, borne on the tide of immigration from Europe and Africa.

The disease propagated itself quickly, attacking all races and classes, but especially the black race.

The harbors of disembarkation for the Africans, like Angra dos Reis, Macahé, and Campos, furnished a large contingent of black lepers, employed in the rural service.

There is in Rio Janeiro an increasingly large number of lepers, most of them poor, but some of them well-to-do, and this number will increase further if the public powers do not take energetical measures to restrict it.

MEDICAL PROGRESS.

Treatment of Chlorosis by Rest.—In a comprehensive article on anemia, published in the *Brit. Med. Jour.* of September 19, 1896, TAYLOR compares the use of iron in chlorosis to that of digitalis in heart-disease, saying that just as in the severer forms of the latter trouble digitalis is useless unless the heart is saved some of its exertion by physical rest, so iron may be of little value in grave cases of chlorosis if the wear and strain of the body is not reduced to a minimum. This is no new point, but it will bear repeating, because of the widespread tendency to insist upon fresh air and exercise for every anemic patient. The value of fresh air is intelligible, and in so far as the chlorosis can be shown to be due to indigestion, and in so far as the exercise may improve this condition, it may be advisable; but in certain conditions it may be shown to be harmful. In late stages of anemia, when the heart is dilated and the patient panting for breath after the least exertion, the attempt to keep up systematic exercise only prolongs the illness. Taylor has seen many cases which had been treated with iron and exercise with only temporary benefit, permanently improved by rest in bed for one, two, or three months, according to the gravity of the case.

A New Method for the Application of Medicines to the Nasal Mucous Membranes.—LIEBREICH (*Therapeutische Monatsschr.*, August, 1896) makes applications to the mucous membrane of the nose in the following manner: A bit of absorbent cotton, corresponding in size to the anterior nares, is saturated with the prescribed fluid. It will hold readily 30 to 40 drops. It is then inserted into the nose so far that it does not protrude, and while the patient breathes with the mouth open, light pressure is made upon the alæ of the nose with thumb and forefinger, the pressure being made from before, backward. This will serve to express the fluid and effectively douche that side of the nose. The simplicity and safety of this method of treatment especially recommend it. The position of the head during the douche is immaterial, and need not be altered, therefore, from its customary one. By experiments upon the cadaver, Liebreich found that 1 c.cm. of fluid introduced into the nasal cavity in the manner described, the head being held in a vertical position, bathed the mucous membrane of the inferior meatus and inferior turbinate and, to a less extent, that of the middle turbinate, depending upon the configuration of the nasal cavities.

THERAPEUTIC NOTES.

Non-Tubercular Chronic Diarrhea of Infants Treated by High Injections.—DAUCHEZ (*La Presse Méd.*, July 25, 1896) advocates the use of large irrigations of warm boric-acid solutions in non-tubercular chronic diarrhea of infancy. By this means the infectious agents, ferments, and microbes, which settle especially in the large intestine, are washed away. If desired, a two-per-cent. solution of hyposulphite of soda, or of nitrate of silver 1–2000, may be introduced high up into the rectum by means of an esophageal or urethral catheter of large caliber.

These injections should be made every day, or at least, every second day, alternating, in the latter instance, with a periodical or methodical treatment by means of purgatives (sulphate of soda, or magnesia, or calomel, associated with betanaphthol or salol). Later (from the sixth to the fifteenth day), opium and subnitrate of bismuth will complete the cure.

The investigations of Gilbert and Dominici have shown that purgatives reduce from fifteen billion to two or three billion the organisms found in the intestines in such cases —coli bacilli, spirilli, amebæ, etc. The stools, owing to the action of these intestinal microörganisms, are very fetid—brown, or green, and fluid—mixed with glairy secretions which adhere to the napkins. There are usually only four or five a day, without blood, or membranous flakes, or rice-grains, as in dysentery, without tenesmus, pain, meteorism, or any gastric trouble.

Dauchez agrees with many others who have recently investigated such cases that the usual cause of infection is impure drinking-water. He quotes from a number of clinical records of patients cured in from two to four days of long-standing chronic diarrhea by irrigation of the colon. In introducing large quantities of fluid the pressure should be slight (one to three ft.) and the fluid should enter the colon slowly, while the patient lies on his back with a pillow under the left hip so that the cecum may be low.

The Treatment of Lupus.—FEIBES reports excellent results from the local treatment of lupus vulgaris with a solution of one part of metallic mercury in two parts of fuming nitric acid. The application may be made by means of a small bit of wood, pointed at one extremity, which is dipped into the solution and plunged into the lupous nodule. Ten or a dozen nodules may be thus treated at one sitting, which is repeated every three or four days. The little wounds are covered with cotton, which is removed with the aid of a borated solution on the following day and replaced by lead-plaster. The resulting cicatrices are very small.—*Semaine Médicale*, 1896, No. 30.

The Medical News.

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SATURDAY, OCTOBER 31, 1896.

EFFICACY OF SULPHUR-DISINFECTION.

An English health officer, Dr. Kenwood, wearied of hearing the disinfecting of rooms by sulphurous-acid gas referred to as "inefficient," "unscientific," and "useless," undertook experiments to determine the truth of such assertions. His results and conclusions are published in the Medical News, September 5, 1896, p. 277.

Referring first to statistics of parts of London and its vicinity, he found that in 1895 there were 1330 premises disinfected by sulphur for either diphtheria or scarlet fever. In fifty-five instances (four per cent.) one of these diseases broke out in the same premises within two weeks after disinfection. As several causes other than that of faulty disinfection of the room combine to make up this small percentage, the author looks upon these figures as proving the value of sulphur. Thus, infection may have antedated fumigation, or it may have occurred from improperly disinfected clothing, or from a totally outside source.

But not satisfied with statistics, Dr. Kenwood turned to experiment, and exposed fresh diphtheria-bacilli on swabs and lint in a closed room, in which sulphur was burned just as it would be in official disinfection, *i. e.*, one pound of sulphur to every 1000 cubic feet of air-space. When this amount of sulphur was burned, the air tested four hours later was found to contain 0.88 per cent. of SO_2. Other tests were made with less amounts of sulphur, so that the air contained only 0.5 per cent. and 0.25 per cent. of SO_2 respectively. In the twelve tests made where one-half pound of sulphur or more was burned to each 1000 cubic feet of space, no growth could be obtained from the cultures. In the twelve tests made by using sulphur (liquefied SO_2), only sufficient to give a percentage of 0.25 in the air, one weak diphtheria-culture was obtained growing after three days' interval. In two other instances aerial bacteria were obtained. Control-cultures in every case grew vigorously.

Dr. Kenwood concludes therefore that for the germs against which it is employed sulphur-disinfection is efficient, and possesses over the method of rubbing down or sponging the walls, employed in Germany and France, one notable advantage, in that through carelessness the workman cannot neglect any part of the wall, as may easily be the case where the continental methods are used.

IMPORTANCE AND USES OF HYPNOTISM.

Another universal panacea has been thrust before the attention of the public in a popular journal. We can quite agree with Dr. R. Osgood Mason, when he says, in the *North American Review*, hypnotism has come to stay, but we cannot agree with him in the abounding confidence which enables him to prophesy that its investigation and application will disclose new uses, therapeutic, psychic, and educational, which will place it among the most highly prized agents for good in use among intelligent well-wishers of humanity. That "suggestion" may be made to serve many good purposes, stimulating the weak along the path of moral rectitude, inhibiting lower impulses, now and then subserving the purposes of a therapeutic agency, we do not deny. We believe, however, that the first object of an article, particularly one by a medical man, recommending a new therapeutic or pedagogical agent, should be clearly to distinguish between those cases in which it is ser-

viceable and those in which it is not; and when such an article appears in a popular journal, universal promises should not be extended which may postpone the initiation of individual effort in a moral or intellectual sphere, or may delay recourse to proper medical treatment. The evil of all mind-cures lies in just this, that the unthinking public fails to distinguish the very marked line of separation between the cases in which the influence of the mind may act in a remedial manner, and those cases in which its influence can produce no beneficial change whatever.

It is demanded, from a medical man especially, that attention should be called to the fact that susceptibility to hypnotic influence is itself a stigma of neuroticism, perhaps of hysteria, and that those cases in which hypnotism has been effected have this in common with cases of mind-cures, that they are most frequently observed in hysterical subjects whose symptoms are significant of a disorder of the mind. Far from doing this the author suggests that nearly every one is to a greater or less degree susceptible to hypnotic influence. Nearly every one can be made sleepy by looking at a bright object fixedly, while some one else strokes his brow, pats his hand, makes monotonous passes in front of his eyes, or utters rhythmical sounds. But that nearly every one can be put into such a state, that the cigarette- or drink-habit can be suggested away, or that nocturnal terrors, insomnia, stammering, or immorality can be done away with, has not been proved by a careful study of such hypnotic cases as we possess.

Continued hypnotization may only injure the subject by diminishing his power of self-conscious coördination and direction of effort. He learns to depend upon an extraneous force instead of depending upon himself. The hysteric or moral imbecile frequently shows that his chief deficiency is a susceptibility to every fleeting idea or impulse that may come before the mind. Among others, such ideas or impulses may be suggested to him by the hypnotizer; continued hypnotization makes the victim more susceptible to such influence, and a general susceptibility to the suggestions that come from without takes the place of those that come from a single source. Mental tonic is what such persons need; they need to have suggested to them that they themselves can overcome these difficulties; they need to be taught methods of self-conquest; they need to be made independent of the hypnotizer. Many such cases, like broken reeds, lean upon the personality of the hypnotizer. When that is removed, like broken reeds, they fall to the ground.

PROGRESS IN OPHTHALMOLOGY.

EXTRACTION OF THE CRYSTALLINE LENS IN HIGH DEGREES OF MYOPIA.

The correction of errors of refraction, by means of glasses, has reached, at the present time, a high degree of excellence, conferring its greatest benefits on humanity when applied to far-sighted, astigmatic, and moderately myopic eyes. The extremely near-sighted eye, largely a product of civilization, presents certain features which render it impossible to afford to the possessor the degree of relief that is desired, by the application of correcting glasses. In myopia of 15 diopters, the farthest point of distinct vision is 2.6 inches; the individual is able to see objects with reasonable distinctness at a slightly greater distance, and usually holds whatever he is reading somewhat further from the eye. With a practical far-point at 4 inches, the degree of convergence necessary for binocular vision is excessive, calling for great exertion on the part of the internal recti muscles. It is also necessary for the individual to bring his head close to the object viewed—conditions that tend to augment myopia. Myopia of the higher degrees is often progressive. The globe elongates and, as it becomes enlarged, carries with it such changes as posterior staphyloma, posterior choroidal atrophy, rarification of retina and choroid at the posterior pole, detachment of the retina, spontaneous subluxation of the lens, degeneration of the vitreous, etc., with consequent partial or total loss of vision. A strong concave glass before an eye causes a reduction in the size of the retinal image and lessens, to some extent, the degree of illumination. The effect produced is as though one were looking through the large end of an opera-glass, and is so unpleasant that the patient prefers to wear a glass that falls short of the full correction.

The extraction of the crystalline lens for the

improvement of vision and the alleviation of the condition in high degrees of myopia was first practised, according to M. Dujardin, by the Abbé Desmonceaux, in France, in 1776, but did not come into general use. In 1887, Tukala removed the crystalline lenses in two cases of high myopia, and presented the patients at a meeting of the Vienna Medical Society in 1889. The vision had been greatly improved and the myopia had not progressed. Soon the discussion of the procedure became widespread. Much was said for and against the operation, but its advocates steadily gained ground, until now the benefits conferred on the patients are becoming fully realized, and the operation has reached a position in ophthalmology which it bids fair to retain.

The operation employed by nearly all ophthalmic surgeons is discission; the greater part of the crystalline lens is broken up by means of the discission-needle. In from two to five days, according to the rapidity with which the lens-débris becomes opaque and swollen, the lens-substance is removed through a small, linear, corneal incision, without iridectomy. There are exceptions to this general rule. Although absorption of lens-débris does not go on so rapidly in old as in young individuals, the progress is quite satisfactory, because of the fact that sclerosis of the lens is less marked in myopic eyes. Von Hippel states that sclerosis does not occur in the lens of myopic eyes, but this statement must be somewhat modified.

But few accidents occur when the operation by discission and subsequent evacuation of the lens-débris by linear extraction is resorted to. Pflüge, who has operated in more than eighty cases, believes that the operation is, in a measure, protective, and even curative, as he has observed one recovery. The evidence obtained goes to prove that the accidents that follow the operation are much less numerous than those observed after cataract-operations.

It is very important to know what the effect of the operation is on the myopia. Does it, or does it not, prevent its progress? Fukala has observed cases in which the operation was performed on one eye and not on the other, the condition remaining stationary in the eye operated upon and advancing in the other. Pflüge has observed two cases where the myopia has advanced, establishing the fact that the operation does not arrest the progress of the myopia in all cases.

In regard to the advisability of operating on one or both eyes, operators are largely agreed that if the myopia is of approximately the same degree in both eyes, the lenses should be removed from both. Operation on a single eye is advised only in cases where one eye is much more near-sighted than the other, or where there is and will be no attempt at binocular vision. Fukala urges the double operation in all cases of high myopia in which divergence or convergence is threatened, asserting that binocular vision may be retained after the crystalline lenses are removed.

The effect (Schanz, *Graefe's Arch.*, vol. xii, 1, p. 109) on vision after the operation is truly remarkable; in this all operators are agreed. The gain is usually twofold or threefold, in some cases (Fukala) tenfold. This improvement is made possible by the increase in the size of the image formed on the retina and in the more or less increased illumination. The image, before and after the operation, in myopia of 12 to 14 D. holds the approximate ratio of two to three. The power of accommodation, except in the low degree, possible to some aphacic eyes is done away with; but since the accommodation in high degrees of myopia is employed but little, this is hardly missed by the patient, and does not constitute a serious objection. The patient is enabled to read at a greater distance, can do ordinary work, and, in fact, reaps all the benefits of having a far-point at infinity.

The effect on the refraction differs in the various cases. Fukala records a difference in the refraction before and after the operation of 12.75 D. to 20 D.; Pflüge, 14.5 D. to 20 D.; Pergens, 14.5 D. to 18 D.; Von Hippel, 14 D. to 24 D.; Sattler, 11.50 D. to 20 D. The difference does not seem to bear any relation to the degree of the myopia. By the above it will be seen that the operation practically converts a highly myopic eye into an eye approaching the normal, so far as the refraction is concerned.

It is, of course, difficult to induce a person who

has useful vision to undergo an operation which, to the average layman, is full of the possibilities of disaster. The facts now at hand will enable the surgeon to hold out hopes to the patient of relief from restraint in the use of his eyes, of greatly improved vision, and of arrest of a process that must ultimately result in great impairment of vision. The operative procedure should therefore be much more readily accepted. According to Lawford (meeting of the British Medical Association), one thousand operations for the removal of the lens in high degrees of myopia have already been reported. Many of these operations have been performed in Germany, some in France, a few in England, and almost none in the United States. It is true that high degrees of myopia are met with here much less frequently than in Germany, but the cases in this country that would be benefited by the operative treatment are not a few, and it is to be hoped that they will find the relief this treatment affords.

JOHN E. WEEKS, M.D.

ECHOES AND NEWS.

Opotherapy.—Lardowzy has given the above name to the use of the animal extracts in medicine.

A Clerical Dentist.—A Sunderland (England) vicar has extracted 25,000 teeth from his parishioners in the course of his pastorate.

Sphygmogenin.—Fraenkel has isolated a principle (sphygmogenin) from the suprarenal capsules. Its presence in the blood is believed to cause increased arterial pressure.

Sanitariums for Consumptives.—It is announced that several large insurance companies are figuring on the cost of maintaining sanitariums in the Rocky Mountain regions for the accommodation of their consumptive risks.

Venereal Diseases in India.—The Government of India is quietly renewing its former stringent regulations against venereal diseases. The medical reports declare that three-fourths of the troops in every cantonment are disabled from these diseases.

The Italian Medical Congress.—The seventh Italian Congress of Medicine was held at Rome, October 20th to 24th. Subjects discussed were recent progress in the physiological pathology of the cerebrum and cerebellum, and myocardiac insufficiency.

Oceanic Gold.—Professor Liversidge of Sydney University has made chemical experiments which show that there are over 100,000,000,000 tons of gold dissolved in the ocean-water of the world, basing his calculation on the rate of one grain per ton, which he found in the water on the Australian coast.

Yellow Fever at Hoffman Island.—In accordance with a requirement of the Health Officer, an unacclimated passenger from Havana was taken to Hoffman Island, New York Harbor, October 19th, to pass the incubation-period there. He developed yellow fever the same night, and died two days later.

Leprosy in Germany.—Professor Koch, who passed ten or twelve days in the district of Memel, studying cases of leprosy and their causes, has discovered only one case. He considers the danger of infection less great than is generally supposed, otherwise the disease would have extended more rapidly.

Human Telegony.—An English doctor reports that one of his patients, married to a man with red hair, had no children. He died, and her second husband had black hair, and was otherwise very unlike her first. Several children were born from the second marriage, and all bore a striking resemblance to the first husband and had red hair.

Formic Acid in Rheumatism.—In Russia, peasants affected with rheumatism collect ants' nests in bags, which they plunge into a tub of hot water. This bath has counter-irritant properties, on account of the formic acid given off, and by bathing in it the patient is benefited. On the same principle, Indian tribes treat rheumatism with the sting of bees.

The New York County Society.—At the annual meeting of this Society, held Monday evening, October 26th, the following officers were elected: President, Dr. Landon Carter Gray; vice-presidents, Dr. Robert A. Murray, Dr. Nathan Edward Brill; secretary, Dr. Charles H. Avery; assistant secretary, Dr. William E. Bullard; treasurer, Dr. John S. Warren.

The Charlotte Medical Journal.—We notice great improvements, both in size and appearance, in this popular monthly, and congratulate the editors upon their enterprise. In a State where there does not exist a single medical school, the usefulness of a high-class medical journal cannot be overestimated, and this periodical seems to be meeting the demand in a way to meet the approval of the entire profession.

Southern Section of the American Laryngological Society. The meeting of the Southern Section of the American Laryngological, Rhinological, and Otological Society will be held in New Orleans, March 3 and 4, 1897. This will permit visiting members to see New Orleans during the Carnival season, and will enable them to secure half-rate railroad transportation. A meeting of this Society in the South is a distinctly new enterprise, and should be encouraged.

Phenyl-hydrazin Test for Sugar.—In the *Lancet*, Dr. Mark MacDonald of Liverpool says: "Of all the methods

for determining the presence of small quantities of sugar, by far the most satisfactory, to my mind, is the phenylhydrazin test. This test appears to have gained some by no means merited discredit. This is due not to the test, but to the methods of applying it. Unless one is prepared to spend time and trouble over it, it is better to leave it alone."

The Value of a Fish-diet.—The *Saturday Review* has recently taken up a controversy with some of the British medical journals on the question whether fish is the food for men of genius, and in the course of it declares that "the style and character of Dr. Johnson remained the same, whether he drank lemonade and tea or port and punch." On champagne and ortolans, the writer adds, Burns would have written neither better nor worse than on collops and toddy.

Officers of the New York Obstetrical Society.—At the annual meeting of the New York Obstetrical Society, October 20, 1896, the following officers were elected: President, Dr. R. A. Murray; first vice-president, Dr. C. A. von Ramdohr; second vice-president, Dr. G. W. Jarman; recording secretary, Dr. A. M. Jacobus; assistant recording secretary, Dr. Le Roy Brown; corresponding secretary, Dr. H. J. Boldt; treasurer, Dr. J. Lee Morrill; pathologist, Dr. G. C. Freeborn.

Change of Name.—The editors of *Mathews' Medical Quarterly* announce that with the January issue of that publication its name will be changed to *Mathews' Quarterly Journal of Rectal and Gastro-Intestinal Diseases.* This is a change which has been deemed necessary for some time, as it is essential that the title of a medical journal should convey to the reader an idea of its contents, and this has not been the case with its name from the beginning. It will continue to be the only English publication devoted to diseases and surgery of the rectum and gastro-intestinal tract. The journal will continue to be edited by Drs. J. M. Mathews and Henry E. Tuley, and published in Louisville, Ky.

The Medical Service at St. Paul's.—The unusual success of the doctors' service in St. Paul's Cathedral, London, on the anniversary of St. Luke's Guild, October 21st, is heralded as evidence of a medical rebound from materialism. The Lord Mayor went in state, the representatives of the Royal College of Physicians and Surgeons were met at the door by the Dean of the Cathedral and his staff, and robed medical representatives of the Universities of Oxford and Cambridge, Sweden, Brussels, Heidelberg, Paris, and Berlin, with a party of ladies clad in scarlet robes as doctors of medicine, made an imposing procession. Out of 5500 doctors in London, 1000 attended and listened to the Bishop of Stepney's plea for harmony between science and religion.

Vital Statistics from Damascus.—The Bureau of Statistics of Paris induced the French Government to exchange statistical matters with the Turkish Government. Both Governments consented, and the French Bureau of Statistics prepared blanks to be filled out, which were handed by the French Ambassador to the Turkish authorities. The Parisian bureau has sent six blanks. The questions to be answered were the following: "What is the death-rate of the city? 2. What is the rate of births? 3. How is the supply of drinking-water? 4. How much goods are imported? 5. How much goods are exported? 6. General remarks pertaining to the welfare and health of the people." One blank came back filled out by the chief magistrate of the city of Damascus. The blank read thus: "Answer to 1. In Damascus everyone must die at the command of Allah. Some die young, some die old, but everyone must die. 2. I cannot answer this question. Allah alone knows that. 3. Since time immemorial nobody died of want of water in the city of Damascus. 4. and 5. I never cared of my neighbor's business, and I cannot say how many camel-loads are brought to or sent from Damascus. 6. Since Allah has sent his prophet, Mohammed, into this world, who has cleansed the world with fire and sword, things are a little better, but there is much to be done yet, and much room for improvement. And now, my sweet lamb, do not ask any more such questions, which are neither good for you nor anybody else. This is the first and last blank I filled out for you.—Selam Aleikam."

Relation of Mental Shock to the General Health.—Sir Benjamin W. Richardson, M.D., in *Longman's Magazine*, gives an instance of the effects of mental shock in causing permanent bad health, mental and other—effects that are all too easily inflicted in early life, whether in the period of infancy or in that of school-life. The following is an instance drawn from the latter period: A gentleman who, for many years, was under his observation as a confirmed mental invalid, a strong man in many respects, but utterly irresolute, and, in the end, of disordered mind altogether, acquired his mental disease from sudden distrust. He had, in his childhood, an innate dread of deep water, and he had, at the same time, a tutor for whom he held the warmest affection, coupled with the most absolute trust and confidence. In a thoughtless and unhappy moment this tutor became possessed with the idea that he would break his pupil's dread of deep water by pitching him into a pool where they were accustomed to bathe together, at the deepest part. There was no actual danger, for the depth was really not great, the pool was calm, the boy could swim a little, and in an instant the tutor, a strong and skilful swimmer, was in the water himself, rendering succor and support. The lad was brought to shore safely enough, but the mischief to the mind was inflicted beyond repair. His confidence was obliterated, and a fixed distrust in the mind of the youth was set up forever. If a skilful physiologist could have discovered the seat of trust in that youth and could have destroyed it mechanically, he could not have inflicted a more severe injury nor one more determinately lifelong in its effects.

The Pan-American Medical Congress.—Dr. H. L. E. Johnson announces the following transportation-rates for the meeting of the second Pan-American Medical Congress, to be held in the city of Mexico, Mexico, on No-

vember 16 to 19 inclusive, 1896: The New England roads have made no reduction at all in rates, and the trunk lines have made no general reduction, but have agreed to special rates from the points mentioned in their territory, *viz.*: From New York City to city of Mexico and return, $78.50; from Philadelphia and return, $76.00; from Baltimore and return, $73.50; from Washington and return, $71.50. Should the delegates desire to enter Mexico by one gateway, say Eagle Pass, and return via another gateway, either Laredo or El Paso, an additional charge of $5.75 total will secure such privilege. Pullman berths will cost $23.00 each way. Delegates residing in central traffic-territory, embracing the territory from Buffalo, Pittsburg, and Parkersburg, W. Va., in the East, to Chicago and St. Louis, in the West, will be accorded a round-trip ticket to city of Mexico over any of the lines, on the payment of one first-class fare. Delegates residing in the Western traffic-territory will obtain the round-trip ticket to the city of Mexico for one fare, over the following roads *only:* Missouri Pacific; Illinois Central; Wabash; Chicago & Alton; Atchison, Topeka & Santa Fé; Chicago, Rock Island & Pacific; Chicago Great Western, and Burlington, Cedar Rapids & Northern Ry. Delegates residing in Southern Pacific traffic-territory will be accorded the one-fare rate to the city of Mexico and return. The three Mexican lines have accorded the round trip for one first-class fare. The fare over the Ward Line for the round trip from New York to the city of Mexico, via Tampico, has been reduced, and for this occasion will be $78.00, including meals and stateroom. Special service is arranged for with the American Tourist Association of Chicago, who will provide a special train of sleeping- and dining-cars to run through from Chicago, Cincinnati, and St. Louis to the city of Mexico and return, connecting with the B. & O. R. R. trains from points east and north. This will be the official train and route, and will leave Chicago, Cincinnati, and St. Louis November 10th.

SELECTION.

THE DISCOVERY OF ANESTHESIA AND ITS ADOPTION IN GREAT BRITAIN.[1]

THE "WINE OF THE CONDEMNED" IN ANTIQUITY.

THE idea of blunting the sensibility by artificial means, in order to lessen the pain caused by the knife and the cautery, is almost as old as surgery. The ancient Egyptians are believed to have used Indian hemp and poppy-juice for the purpose, and the *φάρμακον νηπενθὲς*, the sorrow-easing drug, which, we are told in the fourth book of the "Odyssey," was given by Helena to Ulysses and his comrades, may have contained these substances; at any rate, it is expressly stated that she had learned its composition from Polydamnia, the wife of Thone, in Egypt. The "wine of the condemned," referred to by the prophet Amos (ii. 8), is conjectured by Simpson to have been a preparation of cannabis indica. Whatever it was, it in all probability was a narcotic potion of some kind. The Jews were more humane in their method of dealing with condemned criminals than the Greeks or the Romans. In the Talmudic writings there are several passages which seem to show that it was the practise to ease the pain of torture and death by stupefying the sufferers. Thus: "If a man is led forth to death, he is given a cup of spiced wine to drink, whereby his soul is wrapped in night;" and again: "Give a stupefying drink to him that loseth his life, and wine to those that carry bitterness in their hearts." According to tradition, while the Roman conqueror held sway in Palestine, and crucifixion was a common punishment of malefactors, the Jewish women, with the sanction of the Sanhedrin, were wont to ease the death-agony of the sufferers by giving them something in the nature of a "wine of the condemned" upon a sponge. It is probable that the "wine mingled with myrrh," which, according to St. Mark (xv. 23), was offered to Christ while he was hanging on the cross, was a narcotic draft intended to make death painless. In China it is well known that opium is used to the present day, and executioners are often bribed to allow it to be administered before they begin their cruel work.

The Greeks also used means to deaden sensibility to pain. Pindar tells us that Machaon eased the sufferings of Philoctetes with a narcotic potion. Theocritus speaks of Lucina, the goddess whose specialty was the obstetric art, pouring an insensibility to pain down all the limbs of a woman in labor. Unfortunately no details are given of the method adopted. The narcotic properties of mandragora (*Atropa mandragora*, L.), which is allied to our *Atropa belladonna*, or deadly night-shade, appear, however, to have been known to the Greeks, and various preparations of that plant were in use as anesthetics among the Romans. The younger Pliny (A.D. 32–79), in his "Natural History," says that a decoction of it was used by way of preparation for surgical treatment: "Bibitur contra serpentes et ante sectones punctionesque ne sentiantur." The agent was sometimes inhaled, as is clear from Pliny's remark that in some cases sleep may be induced by the smell. Dioscorides (circ. 50 A.D.) gives several prescriptions for the use of the drug for the same purpose. One of these, as quoted by Simpson, is as follows:

"Some persons boil the root in wine down to a third part and preserve the decoction, of which they administer a cyathus in want of sleep and severe pains of any part, and also before operations with the knife or the actual cautery that they may not be felt."

Of a special variety of the plant which was called *μώριον*, probably because it engendered *μωρία*, or foolishness, in those that partook of it, the same author speaks as follows:

"They relate that a dram of it being taken as a draft, or eaten in a cake or other food, causes infatuation and takes away the use of the reason. The person sleeps without sense in the attitude in which he ate it for three or four hours afterward. Medical men also use it when they have recourse to cutting or burning."

Atropa mandragora grows in the Grecian Archipelago, and Sir Benjamin Ward Richardson says that many years ago he received some specimens from the late Mr.

[1] From *The British Medical Journal.*

Daniel Hanbury, who had collected them while traveling in Greece. Sir Benjamin prepared a draft of mandragora according to the prescription of Dioscorides. He says that "the phenomena repeated themselves with all faithfulness," and he adds that "there can be no doubt that in the absence of our now more convenient class of anesthetics, morion[1] might still be used for general anesthesia." Seneca, Apuleius Lucius, and other ancient authors also refer to the narcotic effects of mandragora. From a casual reference made by the theological writer Origen to a draft which cast patients, when surgical operations are to be performed, into a deep sleep, the practise of inducing anesthesia would appear to have been common in the third century. The drug used was doubtless mandragora. In the same century Indian hemp was employed for the same purpose in China.

In a collection of old Chinese writings, entitled Kou-Kin-I-Tong, presented many years ago to the French Academy by M. Stanislas Julien, there is a biographical sketch of a surgeon named Moa-Tho, who, in the years 220–230 of our era, gave patients on whom he wished to perform painful operations a substance called Ma-Yo, which is said to have been Indian hemp, the effect of which was that after a few moments they became insensible, as if they were drunk or deprived of life.

A local anesthetic agent is referred to by Pliny and Dioscorides as *lapis Memphiticus*, or Memphis stone. This, powdered and mixed with vinegar, was applied to parts which were to be cut or burned. Littré conjectures that this stone was a kind of marble which, on the addition of vinegar, gave off carbonic acid, which deadened the sensibility of the nerve-ends. Withington suggests that it may have been a kind of bitumen, and that such anesthetic effect as it may have had was due to the phenol which it contained.

THE "DROWSY SIRUPS" OF THE MIDDLE AGES.

Down to the sixteenth century, mandragora was in more or less general use as an anesthetic. The most celebrated prescription for its use was that given in the "Chirurgiæ" of Theodoricus of Lucca, Bishop of Cervia (lib. 4, cap. viii.), under the name of "Spongia Somnifera." Theodoricus, who died in 1298, was the son of the famous surgeon Hugo of Lucca, and was himself at the beginning of his career a surgeon. On entering the Church he published the secrets which he had learned from his father. The following is the composition of the "sleeping sponge:"

"Take of opium, of the juice of the unripe mulberry, of hyoscyamus, of the juice of hemlock, of the juice of the leaves of mandragora, of the juice of the woody ivy, of the juice of the forest mulberry, of the seeds of lettuce, of the seeds of the dock which has large round apples, and of the water hemlock—each an ounce; mix all these in a brazen vessel, and then place it in a new sponge; let the whole boil as long as the sun lasts on the dog-days until the sponge consumes it all, and it has boiled away in it. . . . As oft as there shall be need of it place this sponge in hot water for an hour and let it be applied to the nostrils of him who is to be operated on until he has fallen asleep, and so let the surgery be performed."

After the operation the patient was to be aroused in the following manner:

"This being finished, in order to awaken him, apply another sponge dipped in vinegar frequently to the nose, or throw the juice of the root of fenugreek into the nostrils; shortly he awakens."

The "Confectio Soporis Secundum Dominum Hugonem" was still in use in the sixteenth century as we learn from Jean Canappe, whose work, "Le Guidon pour les Barbiers et les Chirurgiens," was published in 1538. The concluding sentence of the following passage shows that opium was also used as an anesthetic in his day:

"Aucuns, dit-il, comme Theodoric, leur donnent médicines obdormifères qui les endorment, afin que ne sentent incision, comme opium, succus morellæ, hyoscyami, mandragoræ, circutæ, lactucæ, et plongent dedans esponge et la laissent seicher au soleil, et quand il est necessité, ilz mettent cette esponge en eaue chaulde, et leurs donnent à odorer tant qu'ilz prennant sommeil et s'endorment; et quand ilz sont endormis, ilz font l'opération: et puis avec une autre esponge baignée en vin aigre et appliquée ès narilles les esveillent, ou ilz mettent ès narilles ou en l'oreille, succum rutæ ou feni, et ainsi les esveillent, comme ilz dient. Les autre donnent opium à boire, et font mal, spécialement s'il est jeune, et le apercoivent car ce est avec une grande bataille de vertu animale et naturelle. J'ai ouï qu'ilz encourent manie et par conséquent la mort."

Dr. E. T. Withington, in his "Medical History from the Earliest Times," quotes the following recipe from the author of the "Breviarium" (Arnald of Villanova?):

"*To produce sleep so profound that the patient may be cut and will feel nothing, as though he were dead.* It is an 'experimentum' of Magister Michael Scot. Take of opium, mandragora-bark, and henbane-root, equal parts, pound them together, and mix with water. When you want to sew or cut a man, dip a rag in this and put it to his forehead and nostrils. He will soon sleep so deeply that you may do what you will. To wake him up, dip the rag in strong vinegar. The same is excellent in brain-fever, when the patient cannot sleep, for if he do not sleep he will die."

A somewhat similar prescription is given by Nicholas, provost of the famous old medical school of Salerno, in his "Antidotarium."

The idea of anesthesia produced by drugs was familiar to medieval romance-writers and poets. In Boccaccio's "Decameron" the catastrophe of one of the stories turns on a gallant drinking by mistake a draft prepared by a surgeon for a patient whose leg he was about to amputate. Marco Polo tells us that the Old Man of the Mountain used to drug his victims. Du Bartas, in the sixteenth century, wrote (as Englished by Silvester):

> Even as a surgeon, minding off to cut
> Some cureless limb, before in use he put
> His violent engines on the vicious member,
> Bringeth his patient in a senseless slumber,

[1] Sir Benjamin uses the word "morion" as denoting the potion itself rather than the particular kind of mandragora from which it was made. He further translates "morion" as "death-wine," as if it had something to do with the Latin *mori*, an etymology which, as Count Smorltork might have said, "surprise by himself."

> And griefless then (guided by use and art)
> To save the whole cuts off th' infected part.

Shakespeare's allusions to poppy, mandragora, and other "drowsy sirups," are too familiar to need quotation, but the following passage from a somewhat later dramatist is interesting. Middleton, in a play called "Women, Beware Women," writes:

> I'll imitate the pities of old surgeons
> To this lost limb, who, ere they show their art,
> Cast one asleep, then cut the diseased part.

In the days of the rack and the thumbscrew it was natural that there should be traditional secrets among criminals for baffling their tormentors. The following passage is quoted by Simpson from "Le Procès Criminel" of Claude Lebrun de la Rochette:

"As to their artifices not to feel the pain of the rack, I saw in the first year of my reception at the bar of Beaujolais, which was in the year 1588, that one of four thieves who were prisoners, the chief named Grand François, a man of gigantic stature, was put to the rack, fell asleep, and the toes were torn from both his feet, without his manifesting any signs of pain. One of his companions observed that he had eaten soap, which stupefied the nerves. The remedy to the artifice is to give wine, which being brought and drunk, he then said he was dead, and without further torture freely confessed an infinite number of murders and robberies."

From other writers of the same period it may be gathered that soap dissolved in clear water was believed by the poor wretches, who went in fear of the attentions of the ministers of the law, to have the power of making them insensible to torture.

Local anesthesia was not unknown. Besides the Memphis stone already referred to, we read of inunctions of opium, celandine, saffron, the marrow and fat of a man, with the oil of lizards, as likely to help a person on the rack in withholding the confession it was desired to extract from him. Bernard states that the Salernitans used to rub up poppy-seed and henbane and apply them as a plaster to deaden sensibility to parts to be cauterized.

Local anesthesia was sometimes produced by freezing, as is shown by the following passage from Thomas Bartholinus:

"Antiqua cauterio ulcera in membris excitentur; nix affricata induit stuporem. Id me docuit Marcus Aurelius Severinus in Gymnasio Neopolitano olim præceptor meus et hospes, Chirurgorum hoc sæculo princeps. Rectissime autem nivem in vasculum materiæ convenientis capax, sed oblongâ ad extremum et myrtiformi specie, conjectam, sine rei ullius interventu applicavit. A gangrænæ metu securos nos jussit, medicamento sub angustis parallelis lineis applicato, sensu vero post horæ quadrantem sopito, secare locum indolentum licebit."

About the end of the sixteenth century the belief in mandragora and other substances so long credited with anesthetic properties seems to have died out rather suddenly. Ambroise Paré speaks of the "spongia somnifera" as "used formerly" by operators. Simpson conjectures that it was found too dangerous; Snow, however, expressed his "utter disbelief that a sponge containing the oil prepared as above, would, after being placed in hot water, give off any odor or vapor that would cause insensibility." However that may be, we do not hear much of anesthetic drafts or inhalations till near the end of the century. In 1782, Weiss, a pupil of J. L. Petit, is said to have operated on the foot of Augustus, King of Poland, while the royal patient was under the influence of "a certain potion surreptitiously administered."

Other means of producing insensibility were tried and one after the other found wanting. Compression of the carotid arteries, which, according to Casper Hoffmann, used to be practised by the Assyrians of old in the circumcision of boys, was employed by Valverdi and others in the sixteenth and seventeenth centuries. Morgagni used this method in vivisection of animals, and suggests that it might be used on human beings. Surgeons have, however, left this mode of producing anesthesia to garoters, who found it very successful for the particular purpose they had in view. Compression of the nerves supplying the limb to be removed was proposed by James Moore in 1784, and was tried with no very brilliant success by Hunter, Malgaigne, and others. Three years before, Sassard, surgeon to the Charité of Paris, had recommended that patients should be prepared for the knife by free drugging with narcotics as a means of preventing shock. In 1800, Humphry Davy in experimenting with nitrous oxid gas found that it relieved pain. To quote his own words:

"The power of the immediate operation of the gas in removing intense physical pain I had a very good opportunity of ascertaining. In cutting one of the unlucky teeth called *dentes sapientiæ*, I experienced an extensive inflammation of the gum, accompanied with great pain, which equally destroyed the power of repose and of consistent action. On the day when the inflammation was most troublesome I breathed three large doses of nitrous oxid. The pain always diminished after the first four or five inspirations, the thrilling came on as usual, and uneasiness was for a few minutes swallowed up in pleasure. As the former state of mind, however, returned, the state of organ returned with it."

In the following passage Davy clearly points out the anesthetic properties of the gas and the use to which they might be put by surgeons:

"As nitrous oxid in its extensive operation appears capable of destroying physical pain, it may probably be used with advantage during surgical operations in which no great effusion of blood takes place."

The anesthetic effects of ether were also plainly enough shown by the case of Lady Martin, reported by Sir Thomas Watson in his classical "Lectures on the Principles and Practise of Physic:"

"Long before its power was used to prevent the inflicted pain of surgical operations, the vapor of ether had been successfully employed to suppress the inbred sufferings of natural disease. A former patient of mine told me this story of herself. She had been sorely tried, in her earlier years, with paroxysms of urgent dyspnea,

frequently recurring, and her life was thought to be in danger. After fruitless trials of various other remedies, the following method was adopted, with the happiest result, under the advice of a physician of high promise, who died young, the late Dr. Woolcombe of Plymouth.

"About two teaspoonfuls of sulphuric ether were poured into a saucer, which was placed on her lap, and over which she breathed, as she sat gasping in bed, with a shawl thrown over her head to prevent the escape of the vapor. Very soon a delightful sensation of tranquility ensued; she felt (I quote her own words) 'as if going to heaven in a most heavenly way;' and presently she sank back unconscious. As soon as this happened, her husband (the late distinguished Admiral of the Fleet, Sir T. Byam Martin), by whom the process was managed, withdrew the shawl, and in a short time Lady Martin gradually recovered, breathing calmly."

"This mode of quieting her attacks of asthma was begun in 1806, a few years after the publication of Sir Humphry Davy's hint; and it was repeated again and again, sometimes twice in the same day, for a very considerable period. Lady Martin survived the prediction of her speedy death for forty-three years."

But the teaching of this case and the more explicit statement of Humphry Davy were overlooked, and both nitrous oxid and ether remained little more than scientific playthings, which were used by professors of chemistry to relieve the tedium of their prelections. Meanwhile the operating-theater continued to be a place of hideous torture, and surgeons were often too glad to take advantage of any means of escape from the necessity of using the knife.

THE ADVENT OF TRUE ANESTHESIA.

So far the history of the efforts to free surgery from the black shadow of pain which darkened its footsteps had been a record of delusion and failure. Surgeons had given up hope of finding any means of masking the terrors of the knife, and Valpeau had declared that "the prevention of pain in operations is a chimera which it is not permitted to pursue." Yet the words had scarcely been written when the problem which so long had been the "mere despair of surgery," and which had just been pronounced on such high authority to be insoluble, was triumphantly solved. This great step in the progress of mankind we owe to America. To a young dentist of Hartford, Conn., belongs the credit of having practically proved for the first time the possibility of abolishing sensation so utterly that a painful operation could be done without being felt.[1]

ORIGIN OF THE TERM ANESTHESIA.

The proper naming of a new substance or a new process is often almost as troublesome as the discovery of it. Soon after the memorable 16th of October a meeting was held at the house of Dr. A. A. Gould, in Boston, to choose a name for the last heir of Morton's invention. At this meeting were present Dr. Henry J. Bigelow, Dr. O. W. Holmes, and Dr. Morton, and Dr. Gould read aloud a list of names which he had prepared. On hearing the word "Letheon" Dr. Morton exclaimed, "That is the name the discovery shall be christened." Dr. Gould and others also favored this name, which is derived, of course, from Lethe, the river of forgetfulness. Subsequently, however, Dr. Holmes wrote a letter to Dr. Morton in which he proposed the name which has since come into general use.

THE FIRST OPERATION UNDER AN ANESTHETIC IN ENGLAND.

The first operation under ether in this country was performed by Robert Liston in University College Hospital on December 22, 1846. Among those present on the occasion were the late Sir John Erichsen, Sir Joseph Lister, Mr. William Cadge of Norwich, Dr. W. H. Ransom of Nottingham, and Dr. William Squire.[1] Mr. William Cadge has been good enough to send us the following interesting note on the subject:

"I have no written notes of what took place on that memorable occasion, and I must trust to my memory, which may betray me into mistakes as to some minor details, but as to the main incident of amputation of the thigh, the scene was too startling and dramatic ever to be erased from my recollection.

"Dr. Boot of Gower street had reported to Mr. Liston the definite and authentic information of the effect of ether-inhalation that he received from Dr. Bigelow of Boston in December, 1846. Two days after this communication was the operating-day at University College Hospital, and Liston resolved to put the matter to the test. In the interval, Mr. Squire, the well-known chemist of Oxford street, prepared the apparatus, and Mr. (now Dr.) Squire administered the ether.

"On December 21, 1846, at two o'clock, the operating theater was filled with students and spectators; Liston addressed a few words to them as to the nature of the experiment about to be tried, and it was manifest that he had but faint hopes of its success.

"The patient was a man rather below middle age who, to the best of my recollection, had malignant disease of the skin and tissues of the calf of the leg, for which amputation of the thigh was deemed to be necessary. He was a man of courage and of intelligence above the average of hospital patients, and he expressed his willingness to try the inhalation of ether. The apparatus comprised a large bell-shaped glass reservoir containing ether, and a long tube and mouth-piece. Fortunately the vapor caused no bronchial irritation or nervous excitement; the patient passed easily into complete insensibility, and Liston removed the thigh as rapidly as possible; a gentleman present, watch in hand, declared that the cutting operation lasted thirty-two seconds only. It was done by the antero-posterior flap-method; the femoral artery was con-

[1] The discovery of the anesthetic influence of nitrous oxid in 1844 by Horace Wells, who is referred to above, his public failure to demonstrate its value in the surgical amphitheater of the Massachusetts General Hospital, and the subsequent success of ether in the hands of his associate Dr. W. T. G. Morton in the same place on October 16, 1846, are facts in the early history of anesthesia in the United States so well known by every American that we shall economize space by omitting an extended treatment of them at this point.—[Ed.]

[1] See Dr. Squire's own account on a subsequent page.—[Ed.]

trolled by finger-pressure; only three or four vessels required a ligature; lint dipped in water was placed between the flaps, and the stump was folded in a towel and all signs of blood cleared away.[1]

"In a few minutes the patient woke up completely, and could answer these questions: 'Did he feel able to undergo the pain of the operation?' 'Yes, he would submit as best he could.' 'Did he not know that the limb was off?' Then he remonstrated against trifling with his feelings at such a moment; but, when the towel was removed from the uplifted stump so that he could see it, he burst into tears and fell back on his pillow.

"The scene at this moment was most impressive, for the success of the whole proceeding was as complete as could be witnessed at the present time. The great surgeon was almost as much affected as the patient; he saw at a glance what a blessing was in store for the human race, and what a boon for the surgeon, and he could scarcely command himself sufficiently to address even a few words to the spectators.

"The next case did not go off so smoothly. The patient was a rough fellow with an ingrowing toe-nail. He became boisterous and violent under the inhalation; he thrust the assistants on one side, jumped off the table, and, so far as I remember, escaped from the theater. He must, however, have been restrained or brought back and rendered insensible, seeing that the necessary operation was done without pain.

"Liston for that day could think of nothing but this wonderful discovery. He wrote this short note to Dr. Boot: '5 Clifford street, December 21, 1846. Dear Sir,—I tried the ether-inhalation to-day in a case of amputation of the thigh, and in another requiring evulsion of both sides of the great toe-nail, and with the most perfect and satisfactory results. It is a very great matter to be able thus to destroy sensibility to such an extent without apparently any bad result. It is a fine thing for operating surgeons, and I thank you most sincerely for the early information you were so kind as to give me of it. Yours faithfully, Rob. Liston.' He also wrote a characteristic letter to his old friend and former assistant, Professor Miller of Edinburgh. I think the letter found its way into a Scotch newspaper, but I can only remember that it began and ended with a quotation from St. Paul, 'Rejoice, and again I say rejoice.'

"That evening I dined with Mr. Liston (I was acting as his private assistant at the time). Two ladies were present, and after the cloth was removed nothing would content him short of my exhibiting the effects of ether by inhalation. When about half under its full effect I could just hear the elder lady say, 'Liston, for God's sake stop; you will be the death of that poor young man.' He did stop, but I felt the effect of his strong grip of the lobe of the ear for a day or two."

CHLOROFORM.

To no man in this country was the announcement that a means of inducing anesthesia had been discovered more welcome than to Dr. James Young Simpson, at that time Professor of Midwifery in the University of Edinburgh. As his daughter, Miss Eve Blantyre Simpson, relates in the most interesting "Life" of her distinguished father, with advance-sheets of which we have been favored,[1] "very early in his student days he had been so sickened at the suffering he witnessed in the operating-theater that he had shrunk from the scene, decided to abandon his medical studies, and seek his way in the paths of the law." Happily for mankind—and particularly for womankind—he did not carry out this determination. As soon as he heard of the use that was being made of ether for surgical purposes in America, he tried it in midwifery. This was on January 19, 1847, and Simpson was the first to use the anesthetic for the relief of the pains of labor. Finding, however, after a time, to quote his own words, that "no busy obstetric practitioner could extensively employ sulphuric ether without inevitably carrying about with him, and upon his clothes, an odor so disagreeable to many other patients, and other houses, as to make his presence there aught but desirable," he set himself to discover something better than ether. Speaking of this search he said:

"Latterly, in order to avoid if possible some of the inconveniences pertaining to sulphuric ether, particularly its disagreeable and persistent smell, its occasional tendency to irritation of the bronchi during its first inspirations, and the large quantity of it required to be used (more especially in protracted cases of labor), I have tried upon myself and others the inhalation of different other volatile fluids, with the hope that some one of them might be found to possess the advantages of ether without its disadvantages. For this purpose I selected for experiment and have inhaled several chemical liquids of a more fragrant or agreeable odor such as chlorid of hydrocarbon, etc. Then Mr. Waldie, a Linlithgowshire man, first named perchlorid of formyl as worthy among others of a trial.

Dr. Jacob Bigelow of Boston and Mr. Jacob Bell, a well-known London pharmacist, had both previously tried chloric ether, and Mr. Bell's experiments had been so successful that Mr. Lawrence used it in surgical operations. Bell, however, failed to recognize that it was the chloroform in the chloric ether that produced insensibility. Mr. David Waldie, who was connected with the Apothecaries' Company at Liverpool, seems to have guessed that chloroform was the active agent, and he promised to procure some for Simpson. There was some delay in carrying the promise into effect, however, and in the meantime Simpson, who was not a man to let the grass grow under his feet, got some chloroform from Messrs. Duncan and Flockhart of Edinburgh, and at once began to experiment with it on himself and his assistants, Dr. George Keith and the late Dr. Matthews Duncan and others. The first trial of chloroform was made in Simpson's house on No-

[1] This was Liston's usual method of amputation. It was the duty of the house-surgeon in the evening, after full reaction from shock, to remove the lint, tie any bleeding points if necessary, and close the flaps with a few points of suture and isinglass-plaster.

[1] The book will shortly be published as one of the "Famous Scots Series," now being issued by Messrs. Oliphant, Anderson, & Ferrier of Edinburgh and London. We have much pleasure in acknowledging the courtesy of the publishers, and of the editor of the series (Mr. Oliphant Smeaton) in the matter.

vember 4, 1847. Miss Simpson quotes the following passage from a letter written by her father to Mr. Waldie, who had drawn his attention to chloroform:

"I am sure you will be delighted to see part of the good results of our hasty conversation. I had the chloroform for several days in the house before trying it, as after seeing it such a heavy unvolatile-like liquid, I despaired of it, and went on dreaming about others. The first night we took it Dr. Duncan, Dr. Keith, and I, all tried it simultaneously, and were all 'under the table' in a minute or two."

Miss Simpson also quotes the following passage from a letter written to her by Dr. George Keith in 1891:

"Dr. Miller, in the appendix to his work on surgery, published soon after, gives a full account of the scene. It is pretty correct, only he says we all took the chloroform at once. This, with a new substance to try, would have been foolish, and the fact is, I began to inhale it a few minutes before the others. On seeing the effect on me, and hearing my approval before I went quite over, they both took a dose, and I believe we were all more or less 'under the table,' much to the alarm of your mother, who was present."

FAR STRONGER AND BETTER THAN ETHER.

Miss Simpson adds that Professor Miller, who was their neighbor, used to come every morning to see if the experimenters had survived. The following passage, which embodies Professor Miller's account of the proceedings, will doubtless be read with interest:

"These experiments were performed after the long day's toil was over, at late night or early morn, and when the greater part of mankind were soundly anesthetized in the arms of common sleep. He describes how, after a 'weary day's labor,' the two sat down and inhaled various drugs out of tumblers, as was their custom, and chloroform was searched for and found beneath a heap of waste-paper, and with each tumbler newly charged the inhalers resumed their occupation. . . . A moment more, then all was quiet; then a crash. On awakening, Dr. Simpson's first perception was mental. 'This is far stronger and better than ether,' said he to himself. His second was to note that he was prostrate on the floor, and that among the friends about him there was both confusion and alarm. Of his assistants, Dr. Duncan he saw snoring heavily, and Dr. Keith kicking violently at the table about him. They made several more trials of it on that eventful evening, and were so satisfied with the results, that the festivities of the evening did not terminate to a late hour, three A.M."

On November 10, 1847, Simpson communicated his discovery to the Medico-Chirurgical Society of Edinburgh in a paper entitled "Notice of a New Anesthetic Agent as a Substitute for Sulphuric Ether." On November 15, 1847, chloroform was used for the first time in a surgical operation in the Edinburgh Royal Infirmary. A public trial of the new agent had been proposed for a previous date, but fortunately for the future of chloroform Simpson could not be found in time to give it, and the patient was operated on without an anesthetic. The case was one of strangulated hernia, and the operator, Professor Miller, had only proceeded the length of dividing the skin when the patient fainted and died with the operation unfinished.

As Simpson himself says: "If the chloroform had happened to be used and this fatal syncope had occurred while the patient was under its action, the whole career of the new anesthetic would have been at once arrested." On the first occasion of its use, three patients were operated on successfully under its influence. One of them (a soldier) was so pleased with the new elixir of oblivion that on awaking after the operation "he seized the sponge with which administration had been made and, thrusting it into his mouth, again resumed inhalation more vigorously than before, as if it were too good a thing to be stopped so soon." At this first public trial of the new anesthetic Dumas, the great French chemist, who had first definitely determined the composition of chloroform, was present, "and was in no small degree rejoiced to witness the wonderful physiological effects of a substance with whose chemical history his own name was so intimately connected."

OPPOSITION TO ITS USE.

Strange to say, the introduction of chloroform met with great and even violent opposition in many quarters. It was not received with enthusiasm by the profession. Surgeons probably were inclined to look askance at a thing which came to them from an obstetrician. Moreover, it was a prevalent belief among them that the pain of an operation was a useful stimulant to the patient. On this ground, as we learn from Sir William Priestley (whose authority we have for citing him as the author of an excellent account of the beginnings of chloroform, which appeared in Dicken's *Household Words* on February 12, 1859), the chief of the Army Medical Staff recommended the surgeons during the Crimean army not to use chloroform. Fanatical clergymen denounced its use in labor as an impious attempt to evade the curse pronounced by the Almighty on Eve and all her daughters. Simpson fought these men with their own weapons, pointing out that the first operation under an anesthetic had been performed by God himself when he cast Adam into a deep sleep before removing his rib. The "scientific" objectors he met with a wealth of convincing argument reinforced by statistics which bore down all opposition. The fight was an obstinate one, but Simpson was victorious, and chloroform won the place, which it held for many years, as the anesthetic most widely used in this country. Its triumph was greatly helped by the courageous example of Queen Victoria, who submitted to be anesthetized at the birth of the late Duke of Albany and at that of Princess Henry of Battenberg. Dr. Snow was the administrator on each of these occasions. On the former of them the inhalation lasted fifty-three minutes. The chloroform was given on a handkerchief in 15-minim doses, and the Queen expressed herself as greatly relieved by the administration. Dr. Snow said that Her Majesty was a model patient.

A LADY'S RETROSPECT.

We have been favored with the following interesting

reminiscences from the wife of a distinguished physician, who was well acquainted with Sir James Simpson:

"I remember one evening entering my mother's drawing-room and finding the professor in the midst of a group of girls all lost in slumber, some just going under the heavenly influence, others coming round. The room reeked with the smell of chloroform. Presently I subsided into the corner of a sofa, and seeing a suspicious-looking handkerchief by my side took it up, found it soaking with something, smelled it, inhaled it, and soon went 'glittering through a dream of things that were.' I knew no more till I came round to a consciousness of the lights in the chandelier above, and of the professor flitting about in great glee calling everybody 'dear.'"

ANESTHETICS AND EXPERIMENTS ON ANIMALS.

It has recently been stated[1] that as regards the "instauration of anesthesia" "there is no suspicion of any experiment on a lower animal in connection with it." This is not the case. Experiments on animals were made by Morton, by Snow, and by Simpson. Simpson's life was, in all probability, saved by an experiment on animals. Lord Playfair speaking in the debate on vivisection in the House of Commons in 1883, related how Simpson in his search for an ideal anesthetic came to his laboratory. A new liquid was put in his hand, and Simpson wanted to inhale it there and then. Playfair, however, insisted on first trying it on two rabbits, which speedily died. Simpson, like Morton, was a reckless experimenter on himself. Miss Simpson tells us that he was once found insensible in his room by his servant Clarke, who said, "He'll kill himsel' yet wi' thae expeeriments, and he's a big fule, for they'll never find onything better than chlory."

THE WORK AND THE WORKERS.

To sum up the story of anesthesia: Nitrous oxid, for surgical purposes, was discovered by Horace Wells; ether we owe to William Thomas Green Morton; chloroform to James Young Simpson. Among these, the largest share of glory may fairly be allowed to Morton, of whom we may say, with Dr. Jacob Bigelow, that "as far as we know he was the only man without whom inhalation might have remained unknown to the present day." To Simpson, however, unquestionably belongs the merit of having made anesthesia triumph over all opposition. For this he deserved the rewards which fell to him in the evening of his days, and the motto which he chose when he was made a baronet, *Victo Dolore*, is the expression of a truth, and not an empty boast.

The First Operation Under Ether in Great Britain.

BY WILLIAM SQUIRE, M.D., F.R.C.P.

Looking back fifty years to the induction of anesthesia by the inhalation of ether-vapor during surgical operations, my own share in securing the early success and general adoption of this method seems to me greater now than it did at one time. With the first announcement from America no details of the mode of administration were received, and failure at the outset would have brought discredit on the discovery, and might have delayed indefinitely the benefit it offered. Several circumstances combined in producing the successful result attained. I had come up to University College in October, 1846, after two or three years' pupilage with an old student of the college, bringing introductions to Quain and Liston, together with specimens of bony union in fractured neck of the femur now in the College of Surgeons. I had assisted Robert Ceely in his experimental transfer of variola into vaccinia, and had gained an interest in surgery from my teacher at Chesham, and from Aston Key at Hemel Hempstead.

Liston, a friend of my uncle the chemist, drew my attention to some cases in his wards, and especially to a delicate fair-haired man, worn out with suppurating knee-joint disease and loss of sleep from the "jerks" caused by eroded cartilage; the man from weakness and fear had more than once refused his consent to amputation. On Saturday, December 20th, I think, Liston came early to the hospital with news of Morton's discovery; he took me with some ether from the hospital to the house of Dr. Boot, and then to Mr. Robinson's opposite; but little ether had been used in the case of the lady who had first submitted to the dentist's hands, whether on that or the previous day I cannot say, but the second case of tooth-extraction at the dentist's house was a failure, not from want of a supply of ether but from want of efficient means of giving sufficient to prevent or overcome the excitement it occasioned. To risk such failure at the hospital, or a repetition of the O'Key's mesmeric deceptions, then of recent notoriety, was out of the question, but ether-vapor had been inhaled in the chemistry-class at the college as well as nitrous oxid in the same manner from a bag, while Hutchinson's spirometer was then in daily use. A more efficient means of administration was evidently needed, and Liston drove me to my uncle's laboratory to see what better means could be devised.

My confidence in success was unshaken; I had breathed ether in the College demonstrations, and had noticed that while under its influence my knuckles were bruised against the iron edge of the class-room desks without any sense of pain at the time. With a larger supply of vapor than that supplied for inhalation at the College, less excitement and further insensibility might be produced. Among the glass vessels in Oxford street was one sufficiently large, with an opening below where a good-sized tube could be fixed, and a larger one above where more ether could be introduced; this was at first closed with a sponge, a suitable tube was fitted into the lower opening, and for a mouthpiece a folded towel was bent into a funnel, the tube inclosed in the apex of the cone,[1] and when Liston returned in the afternoon all was in readiness. Enough ether to produce the volume of vapor required to fill the vase was put into it, and the upper opening filled with a new sponge on which the same quantity of ether was poured, and I commenced inhalation. At first I could not hold the cone close to my face, but soon took it in deep

[1] Sir B. W. Richardson, "Biological Experimentation," London, 1896, p. 47.

[1] The sponge soon found its way into the cone, or the ether was sprinkled there without the intervention of jar and tube.

breaths, and evidently soon became unconscious and dropped the tube. Liston made a small puncture under my finger-nail, and was satisfied as to my insensibility to pain. It was arranged for us to meet at Mr. (now Sir Edwin) Sanders' the next morning, and, as my uncle had to be in his hands, he would try its effects.

I made further experiments upon myself on Saturday, and my uncle's chief assistant, Mr. John Taylor, now of 14 Baker street, consented to a further experience. At this time a small glass vessel with two openings, one fitting into the larger vase and another at top, was used to contain the sponge, and a larger supply of ether was used. When my subject began to tolerate the stronger vapor, I brought the smooth base of the cone over the nose and the lower end of it under the chin, and a very quiet and complete anesthesia was produced, which lasted some minutes after the inhalation ceased. The meeting at Mr. Sanders was deferred, and Liston, after further demonstration in Oxford street, arranged for the removal of the diseased knee next day at the hospital, the patient being only too glad to submit himself to the prospect offered him. Notes were sent to several men of eminence in the profession, among others to Mr. Wakley, who was present; Mr. Cadge, now of Norwich, accompanied Liston; Dr. Ransom, now of Nottingham, was one of Liston's dressers at this time. On Monday I took the glass vase and a supply of ether prepared by my uncle to the hospital. I have seen it stated by an intimate friend that he was present at the operation, but neither he nor my friend were in the operating-theater, and neither of them had much liking for that arena. A similar mistake as to my uncle's administering ether for surgical operations has been made more than once.

The first operation in London under ether has been described elsewhere. A more striking display could hardly be imagined; the general effect upon the foremost professional men present was almost of awe, yet not unlike that expressed by the American surgeon Warren, after his first operation under ether, administered by Dr. W. T. G. Morton, "Gentlemen, this is no humbug." Liston said nothing. My own sensations were chiefly directed to the aspect of the patient; the look of alarm on his emaciated pale face soon gave way to the flush of ether; his quiet breathing and calm repose were a joy to witness. When unconsciousness was reached, Liston completed the amputation at the thigh by the flap-operation in twenty-eight seconds from the first thrust of the knife to the last touch of the saw. It had been arranged for the arteries to be tied after the patient had been carried from the operating-table to an adjoining room, but his deep and quiet sleep continuing, the arteries were leisurely secured, and the flaps closed in Liston's usual manner, and neatly dressed, before the return of consciousness was announced by the patient's old cry of, "I can't have it done, I must die as I am." On being told that all was over, he said he still had pain extending to the toes, then when gently raised to see the shortened limb the look of delight in his face will never pass from my mind while memory holds its place. Liston could hardly speak at first, and finally said that he was as surprised as those around him.

Had I not myself felt that ether could annul pain and seen it inhaled in the chemistry-class; had I not been so much noticed by Liston and interested in this particular patient; had I not had the resources of my uncle, Mr. Peter Squire, at hand, and been assisted by his experience and ready invention, the full effects of this anesthetic would not have been obtained and made so evident in the course of one or two critical days. The next few days were fully occupied in administering ether-vapor and inhaling it myself. Some failures were met with small tubes, where imperfect mouthpieces or insufficient vapor were used. One Friday evening, soon after Christmas, I went with Mr. Taylor to the Royal Institution with a somewhat cumbrous inhaler, where he submitted to complete anesthesia at my hands before the assembled members.

During a short Christmas holiday my respiration was so impeded by frequent inhalations of ether that I could not face the outside coach-journey of forty miles to my home in Bedfordshire. I returned to my interrupted medical studies henceforth in close company with Russell Reynolds. I once gave ether for Dr. Murphy in some obstetric difficulty; sometimes I gave ether at the hospital until Thomas Park and Clover took it up, and there met Dr. Snow. Chloric ether, used by Morton before sulphuric ether, was tried, I believe, at St. Bartholomew's Hospital, the form used, like the American preparation, containing more chloroform than that in our Pharmacopœia. Chloroform had been prepared by Soubeiran ten or twelve years earlier. Liston was informed by Mr. Syme of Simpson's use of chloroform, and again asked me to administer it. Subsequently my chief reliance was on this anesthetic. For the mixtures of chloroform with ether and spirit, whether under the designation of methylen, A.E.C., or other names, in cases of labor, Junker's method of administration seemed specially suitable.

SOCIETY PROCEEDINGS.

NEW YORK STATE MEDICAL ASSOCIATION.

Thirteenth Annual Meeting, held at the Mott Memorial Hall, New York, October 13, 14, and 15, 1896.

FIRST DAY—OCTOBER 13TH.

NELSON L. NORTH, M.D., of Kings county read a paper on

FUNCTIONLESS ORGANS—ARE THERE ANY? A POSSIBLE USE OF THE APPENDIX VERMIFORMIS,

in which he referred to the numerous organs which, not very long ago, had been considered rudimentary, or functionless, but which were now known to have their office to perform in the human economy. It had seemed to him that the much-abused vermiform appendix had been created for some other purpose than to be ruthlessly sacrificed to the surgeon's knife, and in the numerous follicles of the appendix he found what seemed to him positive evidence of glandular action. His idea was that its office was to close the ileocecal valve and prevent the regurgitation of foul gases into the small intestine. The author then quoted at length statistics from the Brooklyn Board

of Health, to show that, in spite of the advancements in surgery, the death-rate from appendicitis and allied disorders had been steadily on the increase. He explained this by supposing that proper medical treatment was not given at the beginning of these affections—that many of the present generation of medical men had already forgotten the important lessons taught by Alonzo Clark and others. His own long experience in practise had long ago convinced him that the early and intelligent use of mild purgatives and enemata, together with the bold use of opium, when peritonitis threatened, would serve to cure many cases of appendicitis which physicians at the present time were prone to abandon at once to the surgeon.

DR. JOHN CRONYN of Erie county said that the medical treatment would be found all-sufficient in a large proportion of cases of appendicitis, if the physician would begin the treatment by giving a large dose of calomel, and follow this up by a liberal use of opium and the application of an ice-bag or a poultice to the affected region.

DR. WILLIAM M. BEMUS of Chautauqua county said that he had had good success in the treatment of this condition by the use of opium internally and an ice-bag externally, assisted by cold-water enemata. He asked Dr. Cronyn when he would apply ice and when poultices.

DR. CRONYN replied that if the case were seen early, the ice-bag should be used; if in a later stage, the poultice would probably be more appropriate.

DARWIN COLVIN, M.D., of Wayne county, the President, devoted his address to

MEDICAL EXPERT TESTIMONY.

Nothing, he said, was more degrading than to hear the medical expert constantly speaking of "our side." When the medical expert was appointed by a power entirely remote from either party to the suit, and was properly remunerated by a daily allowance, then, and not until then, could one look for much improvement in such testimony.

J. W. S. GOULEY, M.D., of New York county read an elaborate paper on

PROSTATIC ENLARGEMENT.

Diffuse increase of the muscle-tissue constitutes the greater part of the substance of some hard prostates. The most common form is chronic progressive enlargement of the prostate, a condition found in about forty per cent. of men between fifty and seventy years. Out of this number, however, only about one in six suffers from any serious interference with urination.

In the treatment of these cases, irrigation of the bladder is an important part. For this purpose, he favors the use of a 1–1000 solution of formalin, or of a 1–10,000 solution of corrosive sublimate containing one per cent. of phenol. Very weak solutions of nitrate of silver also act beneficially on the vesical epithelium. If very foul, the bladder should be washed out with the sublimate solution in the morning, and in the evening with the silver solution. The use of metallic catheters, either by patient or physician, was to be condemned, and it should not be forgotten that unclean or rough catheters were often the cause of much mischief. The indications for operative interference were: When the bladder was permanently contractured and its capacity inordinately reduced; when catheterism was extremely difficult or was followed by rigors, and in some cases in which auto-catheterism was not practicable. Early operative interference was justifiable, because it tended to prevent the occurrence of lesions which result from the retention and stagnation of the urine. It was, however, contraindicated when the upper urinary organs were much diseased. Where there was malignant or tubercular disease of the prostate, or slight disease of the upper urinary organs, palliative operations were called for. These were: Suprapubic cystotomy, the establishment of a suprapubic fistula, dilatation of a false route, and capillary puncture of the bladder. The first method was of much value in malignant or tubercular disease of the prostate. Dilatation of a false route was to be accomplished by the use of a special instrument, called an "invaginated catheter." After this operation, spontaneous micturition would ordinarily be possible for two years, and after this time, although catheterism would be required, it would be comparatively easy. Capillary puncture was rarely necessary, although in some emergency-cases it was proper to resort to it *once* to relieve intense suffering. Statistics showed that repeated capillary puncture was unwise. Among the radical operations performed were: Excision of urethro-vesical bars, excision of the central portion of the lower third of the isthmus, excision of vesical growths, and more or less complete removal of the prostate itself. Experiments on the cadaver had shown that the soft variety of prostatic enlargement could be readily enucleated, and this was the form most commonly met with in elderly men. Among the greatest and best operations ever devised for performance on the genito-urinary organs, he would class Dr. S. Alexander's method of doing prostatectomy. The operation could be done rapidly and thoroughly, with but little hemorrhage and injury to urethra and bladder, and it provided for efficient drainage, through both the suprapubic and perineal wounds.

DR. SAMUEL ALEXANDER of New York county said that in the management of enlarged prostate the choice lay between the use of a catheter for the rest of the patient's life, the removal of the prostate, or the formation of a permanent artificial channel for the urine. The value of catheterism depended largely upon the care with which it was done, and hence it was more applicable to intelligent people of leisure than to the ignorant and busy laboring man. In some cases, however, the most careful catheterism failed to give relief. Radical operative interference was indicated in the following conditions: (1) When the degree of retention was such that the patient was almost constantly dependent on the catheter; (2) when there was marked and persistent vesical irritability, due to intravesical growths; (3) when the amount of residual urine is on the increase; (4) when catheterism was becoming more difficult, and frequently followed by hemorrhage; (5) when even careful catheterism produced cystitis; (6) in long-standing cases of vesical inflammation, that have not yielded to other treatment; and (7) when the patients could not or would not use the catheter aseptically. He had performed his operation of prostatectomy first in January, 1894, and had done it altogether

eight times, with but two failures. In all but one of the six successful cases the ability to empty the bladder completely had been restored. Even the completely atonied bladder would, in most instances, regain its tone, even after years of obstruction, and usually, after this operation, voluntary micturition would be restored.

Dr. W. G. Brownson of Noroton, Conn., described his experience in treating old soldiers suffering from enlargement of the prostate. He said that at his institution he had succeeded in giving comfort and happiness to many an old soldier by a simple method of palliative treatment. In cases in which a soft catheter could be introduced, these old men could be kept in fair condition by daily washings of the bladder. For this purpose he preferred a mixture of carbolic acid, glycerin, and water, 1 to 200 or 500. From two to four ounces of the solution were allowed to run into the bladder from a fountain-syringe, and each washing was kept up until the solution came away clear. It was rarely that more than one washing a day was required.

Dr. Douglas Ayres of Montgomery county said that in most instances complete retention of the urine was one of the latest symptoms. In the early stages, much good could be done by advising the patient regarding the proper clothing of the body, the necessity for evacuating the bladder at regular intervals, and by insisting on moderation in exercise, food, and drink. The regulation of the bowels was by no means an insignificant part of the management of these cases. The quantity of residual urine should be determined early, and if the urine were found to be sterile, and to amount to more than about two ounces, the catheter should be used, the frequency of its introduction being governed by the quantity of residual urine. At first, sterilized water, at 100° F., would be found useful for irrigation.

Dr. E. D. Ferguson of Rensselaer county said that in cases demanding drainage of the bladder he had found it useful and convenient to insert the tube to the desired depth, and then secure it in this position by one or two stitches passed through the skin and subcutaneous tissue.

Dr. H. O. Marcy of Boston predicted a brilliant future for Dr. Alexander's operation of prostatectomy, but thought the perineal opening would secure sufficient drainage, without the suprapubic wound.

Frederick Holme Wiggin, M.D., of New York county presented a paper on

THE TREATMENT OF FECAL FISTULÆ, WITH REPORTS OF CASES.

He described in detail three cases of fecal fistula, two of which had been previously operated upon unsuccessfully in another city. These failures were, in all probability, due to the neglect to break up thoroughly the adhesions which, by preventing a free passage of feces, had caused a reopening of the fistulæ. There is but little danger of septic peritonitis arising from accidental discharge of the contents of the bowel into the peritoneal cavity, if the parts are washed with a fifty-per-cent. solution of hydrozone, and followed with saline solution. Used in this way, the hydrozone would not irritate the peritoneum, and, in his experience with this method since 1893, he had found it quite possible to meet successfully this formerly grave complication.

Dr. Marcy heartily concurred in the views expressed in this paper. He said that a number of times, in operating on these cases, he had thought it wiser to leave the original cavity entirely alone, making the incision in the median line, and then dissecting off the adhesion of the intestine to the abdominal wound. The peritoneal opening of the fistula having been closed off, there was only left an external wound, which could be readily treated by dissection. The opening in the bowel he preferred to close by a double-tendon suture, reflecting over it the peritoneum.

Joseph D. Bryant, M.D., of New York county read a paper on

IRRITABLE STUMP.

He reviewed the statistics of the late war, and gave the results of some inquiries that he had made among the makers of artificial limbs. From them he had learned that the important points to secure a useful stump were: (1) A sufficient length of flap to prevent traction on the stump; (2) a movable cicatrix, and (3) a periosteal covering for the divided ends of the bone. The author then described the method which he had found satisfactory in dealing with irritable stump in the lower third of the leg. The important points were: (1) A circular flap is made in the lower third of the leg, of a length a little greater than one-fourth of the circumference of the limb at the point of division of the bone; (2) after reflection of the flap upward equally for half an inch, a transverse incision is made across the subcutaneous surface of the tibia, at the line of reflection of the flap, and through the periosteum; (3) division of the periosteum at the limits of the anterior and posterior borders of the subcutaneous surfaces of the incisions, by an incision in the long axis of the tibia, the periosteum being pushed up, instead of dissected, along with the anterior flap; (4) a portion of the flap corresponding to the subcutaneous part of the tibia is lined, therefore, with the detached periosteum, which falls over the end of the bone when the flaps are adjusted; (5) the tibia is divided transversely on a line with the periosteal reflection, and the fibula, one-fourth of an inch higher up; (6) the flaps are coaptated obliquely on a line with the subcutaneous surface of the tibia, so that the periosteal flap rests evenly over the end of the divided tibia. It was important, the speaker said, that the periosteal covering should remain connected with the superimposed tissues.

J. Lewis Smith, M.D., of New York county read a paper on

THE HINDRANCES TO THE SUCCESSFUL TREATMENT OF THE DISEASES OF INFANCY AND CHILDHOOD.

He dwelt upon the former erroneous notion that dentition was a source of many of the diseases of childhood, and also upon the popular fallacy that "growing pains" were a part of the natural process of growth. He said that this popular fallacy was responsible for the development of many cases of rheumatic endocarditis.

Reginald H. Sayre, M.D., of New York county presented a communication on

THE PRACTICAL USES OF RÖNTGEN'S DISCOVERY AS APPLIED TO SURGERY.

He had been able to take photographs of fractured limbs while still encased in plaster of Paris, thus enabling him to know beyond a doubt the position of the fractured parts. The method also was most admirable in recording the condition of cases of congenital dislocation of the hip, before and after operation, and also to distinguishing between true and false ankylosis. In the former the X-ray photograph would not show the usual gap between the ends of the bones. Owing to the translucency of the cartilaginous portions of the foot in the young child, skiagraphs of club-feet in these little ones were not very instructive.

Edward B. Dench, M.D., of New York county read a paper entitled

TREATMENT OF OTORRHEA AND ITS IMPORTANCE.

He said that a profuse, chronic, purulent aural discharge, which had lasted for over two months, could be assumed to come from the middle ear, and that a scanty purulent discharge probably came from the external meatus. While pressure in front of the tragus, or traction on the auricle, would cause adults pain in cases in which the external auditory canal was affected, this sign could not be relied upon in children, because in the latter there was no bony canal. A recent purulent otorrhea might be due to infection of the tissues about the meatus, or to infection of the tissues in the upper part of the tympanic cavity. Where proper drainage was provided the discharge would cease as soon as all the necrotic tissue had been discharged. The first object of treatment should be to secure free drainage, and the second, to keep the parts aseptic. When syringing out the ear in an adult, the auricle should be drawn outward, upward, and backward; in the case of a child, it should be drawn outward, downward, and backward. Peroxid of hydrogen was objectionable as an application to the ear, because it was irritating, and because the large volume of gas liberated when the solution came in contact with pus was liable to produce an injurious degree of pressure within the ear. The speaker said that he preferred to use a warm bichlorid-of-mercury solution, 1 to 3000 or 5000. Powders were objectionable, because they formed hard crusts and blocked up the canal, and plugs of cotton in the ear were liable to give rise to the formation of furuncles about the meatus. The importance of the subject treated in this paper was shown by the fact that one observer had reported that out of 820 cases of suppurative disease of the middle ear 2.5 per cent. had proved fatal.

Frank S. Milbury, M.D., of Kings county read a paper on

THE RELATION OF AFFECTIONS OF THE UPPER AIR-PASSAGES TO THE DISEASES OF THE EAR.

He spoke of the frequency with which middle-ear disease and deafness were dependent upon stenosis of the nasal passages. For this reason intranasal surgery often improved the hearing. Atrophic rhinitis and nasopharyngeal catarrh, and enlarged tonsils, were the cause of much disease of the ear, and adenoids, by plugging up the Eustachian orifices, gave rise to chronic congestion of the membrani tympani.

SECOND DAY—OCTOBER 14TH.

Thomas J. Hillis, M.D., of New York county read a paper on

THE TECHNIQUE OF INTUBATION IN CHILDREN; SOME REMARKS ON THE TIME FOR OPERATION AND AFTER-TREATMENT.

In performing intubation it should be remembered that the larynx of the adult is much more deeply situated than in the child. It was better to wrap up the child, with its arms crossed over the abdomen, in strong muslin, as in this way more room was left for the operator's manipulations. Sometimes, instead of keeping the tube and introducer exactly in the median line, space was economized by first tilting the instrument so that the tube lies across the tongue. As soon as it touched the guiding finger, the instrument should be restored to the median line. As the cartilaginous rings of the trachea in infants under a year old are soft, it might be possible to remove the tube by "expressing" it with the thumb and finger, instead of removing it in the usual way with the extractor. If it is to be expressed, the child should be placed on the back, with the head thrown well back over a small pillow. Dr. Hillis spoke in the highest terms of the new and ingenious contrivance devised by Dr. Dillon Brown, to facilitate the removal of the tube from the larynx. There could be no exact rule laid down as to the length of time the tube should be allowed to remain in the larynx, but it were better to err on the side of leaving it in too long. After its removal there would always be more or less obstruction, so that if this were not very marked, it should not cause the physician uneasiness. Many have advised that while feeding a child wearing one of these tubes the little patient should be placed on its back, with its head hanging over the edge of the nurse's lap. He preferred to place the child on its stomach, face down, as in this position it had more command over the constrictors. No food should be allowed for at least one hour after the performance of intubation. The best food was bread soaked in milk or beef-juice, and oatmeal-porridge.

John Shrady, M.D., of New York county read a paper on

TEMPERATURE AS AN ELEMENT IN PROGNOSIS.

The problems of waste and supply were to be considered in the light of sex, age, temperament, and environment. High temperatures were not as uniformly fatal as low temperatures, and a high temperature of short duration usually indicated an acute infection. As a rule a subnormal temperature presaged death.

T. D. Crothers, M.D., of Hartford read a paper on

THE MEDICAL TREATMENT OF INEBRIETY.

He said that it was most important to study at the outset the etiological factors present in the individual case. The removal of spirits at the beginning was always followed by the best results, and the reaction could be neutralized by giving one-twentieth of a grain of nitrate of strychnia every four hours, and, if necessary, the bromids for

insomnia. The withdrawal of spirits should always be followed by a brisk calomel purge, the use of hot broths, and hot baths with vigorous massage. Where the patient insisted upon a gradual withdrawal, the strychnia should be given every two hours, and the wines and beers substituted for the stronger spirits. Many cases developed tuberculosis, or other serious organic disease, as a result of the removal of alcohol. In those who show premonitory symptoms of a relapse, a brisk purge, with baths and prolonged rest, will often avert the storm. Drugs, like apomorphia, which are intended to produce a disgust for liquor, are not reliable, and are usually dangerous. The strychnin was best given in combination with cinchona, or other vegetable tonic. Belladonna, hyoscyamus, and drugs of this class, are of limited value, and should be used very cautiously after the withdrawal of spirits. Very large doses of bromids are necessary—from 50 to 100 grains, but not for more than a few days. The speaker said that no single remedy was capable of meeting a wider range of indications than the Turkish bath, combined with massage. In conclusion, the writer stated his belief that if inebriety were more generally and more carefully studied, the results of treatment would be very much better.

H. O. Marcy, M.D., of Boston read a paper on

THE SURGICAL RELIEF OF OBSTRUCTION OF THE COMMON DUCT BY BILIARY CALCULI.

He said that he was the first person to operate for the removal of a calculus situated in the common duct, and that this operation had been performed in October, 1889. The walls of the common duct were divided with scissors and their edges everted from over the roughened calculus. The abdominal cavity had been shut off by sponges before this. With a fully curved needle, threaded with selected tendon-suture, the divided edges of the thickened mucous membrane of the duct and gall-bladder were united by a continuous suture, and over this was another layer of continuous suture, which united the edges of the peritoneum. A third layer of tendon-suture was then applied, the stitches being taken parallel to the long axis of the wound, through the peritoneum. Tension on this suture not alone buried it, but also the uninjured peritoneum, with exact coaptation. The peritoneum was then closed with a continuous double tendon-suture. The divided muscular layers were sutured in a similar manner, in separate layers, and the skin was united by buried tendon-sutures. The patient made a very satisfactory convalescence. When dried, the calculus weighed fifty-nine grains.

Sidney Yankauer, M.D., of New York county exhibited a simple and very inexpensive microtome which he had devised, and which had been found capable of doing as good work as microtomes costing as high as $50.

Dr. Yankauer also exhibited a new plaster-cutter, consisting of three circular plates, having knife-like teeth, and all rotating together like a circular saw. Owing to the peculiar construction of the teeth they did not become clogged with the plaster of Paris.

H. A. Haubold, M.D., of New York county in a paper on

THE PHYSIOLOGICAL DEDUCTIONS REGARDING THE USEFULNESS OF SO-CALLED ANIMAL EXTRACTS,

expressed his disbelief in the efficacy of animal extracts, including the nucleins and protonuclein, and based this opinion on certain physiological considerations. It had been claimed that when the nucleins were administered hypodermically, they gave rise to leucocytosis, but this, to his mind, was only an indication that the blood was making a special effort to rid itself of the foreign substance.

William H. Robb, M.D., of Montgomery county read a paper on

ONE POINT IN THE TREATMENT OF ENDOMETRITIS.

He advocated the use of solutions of nitrate of silver, taking care previously to remove unhealthy secretions. For mild cases, and for those seen early, he preferred to use a solution of the strength of five or ten grains to the ounce, reserving the strong solutions for the chronic and severe cases of endometritis.

Dr. L. J. Brooks of Chenango county said that undoubtedly there was an apparent benefit, at least for a time, after this mode of treatment, but careful observation would show that these applications, particularly the stronger ones, produced an atrophic and non-secreting membrane, which would cause much annoyance in the future.

Dr. J. Francis Calef of Middletown, Conn., said that he found that very weak solutions of nitrate of silver (1 to 3000) were very soothing to inflamed mucous membrane; but in using these very dilute solutions, care should be taken that the water used for washing the surface contained no chlorids.

Dr. W. M. Bemus said that he had found peroxid of hydrogen and also galvanism useful in preparing the endometrium for the application of medicaments.

Dr. John Cronyn said that he had seen benefit frequently ensue from even strong applications of nitrate of silver. Curettage, in his opinion, was a fearfully abused operation.

E. D. Ferguson, M.D., of Rensselaer county read a paper on

A CLASS OF FATAL CASES PRESUMABLY DUE TO INTESTINAL PTOMAINS.

He described the clinical histories of eight cases of obscure, but virulent, toxemia which had come under his observation. Four of them were medical, and four surgical. In each instance the onset had been sudden, and the chief symptom had been the vomiting, first of mucus, and afterward of coffee-ground material. This was sometimes associated with slight icterus, and in every instance death rapidly supervened. The autopsies on two or three of the cases failed to throw much light on the condition, but served to exclude peritonitis, intestinal obstruction and sepsis. The cases had not been associated either in time or locality. The only explanation that he could offer was that some micro-organisms in the intestinal canal had, for some unknown reason, suddenly become active, and as a result of this activity there had rapidly accumulated in the system a powerful and lethal

toxin. This had also resulted in parenchymatous hepatitis and softening and acute atrophy, for these changes were observed at the autopsies. It was evident that in at least some of the cases there was no intestinal obstruction—*e. g.*, the last one, for the bowels moved freely up to the day of death. He would venture the opinion that the cause might be either a bacterial ferment or enzyme, or else that as a result of unusual nerve-inhibition the digestive processes were profoundly disturbed, and so gave rise to the production of this virulent toxemia.

J. E. JANVRIN, M.D., of New York county described

TWO INTERESTING CASES OF SURGERY OF THE KIDNEY.

The first was a case of multiple abscess of the left kidney, complicated by Bright's disease, in which nephrectomy was performed and death occurred from uremia six days after the operation. The second was one of fibrolipoma of the capsule of the kidney, which was successfully removed by laparotomy.

NATHAN C. BOZEMAN, M.D., of New York county, presented a paper on

THE PALLIATIVE TREATMENT OF CANCER OF THE CERVIX AND BLADDER IN WOMEN.

He emphasized the importance of early recognizing and relieving the partially strictured condition of the vagina by the use of intra-vaginal dilators, worn for several hours each day. He had found it very useful in these cases to employ continuous irrigation of the bladder, for a vesico-vaginal fistula due to carcinomatous ulceration should never be closed.

R. ABERDEIN, M.D., of Onondago county spoke on

THE BROMIDS AS A CURE IN DIPHTHERIA.

He said that his friend, Dr. Knight, had observed the beneficial action of the bromids on diphtheria incidentally during an epidemic of that disease in the insane asylum. Following out this suggestion, the speaker said that he had tried the method in thirty-five cases, some of them quite severe, and had lost only two of the patients—one a child of five, and the other a child of eight years. In no case had the remedy produced bromism or irritability of the stomach.

W. T. LUSK, M.D., of New York county spoke on

RECENT INVESTIGATIONS CONCERNING ECLAMPSIA.

He called attention to the fact that many cases of slight albuminuria during pregnancy did not terminate in eclampsia, and that, on the other hand, eclampsia not infrequently occurred without any evidence of albuminuria or other abnormality of the urine. A diminished quantity of urea would indicate an excess of other poisons resulting from tissue-changes. At the present time, a plan of treatment that found much favor abroad was to place the patients showing slight albuminuria, with perhaps slight nervous symptoms, on a diet of at least two quarts of milk a day, and carefully regulating the bowels. Where there were headache and epigastric distress associated with albuminuria, he would be disposed to induce premature labor, but he would not care to interfere if there were no symptoms excepting the albuminuria. Ordinarily, he would prefer the use of Barnes' dilators, but in exceptionally urgent cases it might be justifiable to make the four incisions into the vaginal portion of the cervix recommended by Dührssen. If this were done, the incisions should be sewed up immediately after delivery. Where the eclamptic patient showed turgid blood-vessels, the removal of sixteen ounces of blood from the arm would act more efficiently than any other known measure.

WILLIAM M. BEMUS, M.D., of Chautauqua county read a paper on

THE DUTY OF THE PUBLIC TO THE PHYSICIAN,

which dealt chiefly with certain legal points not infrequently arising in medical practise.. He said that if a physician were sued for malpractise, and won the suit, it was quite likely that he would have to pay costs, owing to the plaintiff not being a responsible party. As a rule, anything warranted by good practise, and not objected to by the patient, is justified in law.

A. A. HUBBELL, M.D., of Erie county in a paper entitled

A PLEA FOR THE GENERAL USE OF MEASURES TO PREVENT OPHTHALMIA NEONATORUM,

showed by statistics that ten or fifteen per cent. of those who have had this disease are blind in both eyes. In the Credé method of prophylaxis, the child is put into a bath as soon as the umbilical cord has been tied, and then the lids are cleansed with absorbent cotton, and a single drop of a ten-grain solution of nitrate of silver is instilled into each eye. As the disease often occurs in cases in which there is not the slightest ground for suspecting that the mother has had gonorrhea, the need of carrying out some such preventive method in the case of every newborn child is manifest.

CHARLES PHELPS, M.D., of New York delivered the address on

SURGERY.

He said that, in the surgery of the past, the diagnosis was often made in the absence of positive data, with an accuracy that made the surgeon's judgment seem almost like intuition. The established dependence of suppuration on the presence of streptococci had revolutionized surgical practise, and this discovery had been followed by both a cure and an absolute means of prevention. It was probably the most conspicuous achievement of contemporaneous surgery. Dr. Phelps devoted the greater part of his address to a consideration of the ethical side, criticizing chiefly the strong tendency at present for surgeons to exploit themselves in the daily papers and elsewhere. The remedy, he said, was to be found in a better preparatory and medical education—a broader culture in all those things which go to make up a true gentleman, and one worthy of belonging to an honorable profession.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 13, 1896, TO OCTOBER 19, 1896.

PROMOTIONS.

Lieutenant-Colonel C. R. Greenleaf, Deputy Surgeon-General, to be Assistant Surgeon-General, with rank of Colonel, October 10, 1896, vice Town, retired.

Major William H. Gardner, Surgeon, to be Deputy Surgeon-General, with rank of Lieutenant-Colonel, vice Greenleaf, promoted, to date October 10, 1896.

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ORIGINAL ARTICLES.

NOTES ON THE MANAGEMENT OF INCURABLE CASES OF CANCER.[1]

BY DANIEL LEWIS, M.D.,
OF NEW YORK;
SURGEON TO THE NEW YORK SKIN AND CANCER HOSPITAL.

THERE is no longer any ground for discussing the question of the curability of cancer. The statistics of numerous surgeons not only place on record many permanent cures, but also conclusively show that improved methods of treatment and perfected surgical procedures are slowly, but steadily increasing the percentage of patients who have remained well beyond the three-year period, which has been adopted as the time-limit beyond which recurrence of the disease rarely happens. In the history of nearly all cases, there is doubtless a period which Mr. Jonathan Hutchinson has characterized as the precancerous stage of cancer, when acuteness of diagnosis and immediate removal of the suspected neoplasm would effect a cure. This stage, however, is usually passed before the patient applies for treatment at our surgical clinics, as the records of all hospitals clearly demonstrate. This leads me to say that the family physician is often charged, perhaps unjustly, with advising delay in the early history of these cases, and thus allaying present anxiety at the expense of the prospects of future successful treatment. If I were asked to formulate in a single sentence the most important factor in the effort to reduce mortality from cancer, I should reply: A thorough study and appreciation of the predisposing and exciting causes of the disease, by the family physician.

When the diagnosis shall be made in the very early stage and treatment shall be at once prompt and radical, the number of incurable cases, of which we are to speak, will rapidly decrease, and the proportional decrease of mortality will mark a new era in the surgery of malignant diseases.

At present we are called upon to attend many patients where every method of treatment has been a failure and nothing remains but such palliative measures as are at our command for smoothing the downward road to the inevitably fatal termination.

[1] Read before the Medical Society of the County of New York.

The resources which may be employed to advantage in these hopeless cases vary according to the site of the disease and, in some degree, to the temperament of the patient.

The remedies indicated may be classified, for our present purpose, as follows: (1) Psychological influences; (2) medicinal agents; (3) surgical operation; (4) local applications, dressings, antiseptics, etc.; (5) anodynes; (6) inoculation with various toxins.

The influence of the mind upon the course of disease is very marked in many other conditions, and we have reason to believe, with Dr. Herbert L. Snow of the London Cancer Hospital, that mental anxiety is sometimes even an etiological factor in cancer. You will all recall the fear which many a neurotic patient experiences because of the supposed hereditary character of cancer. This, the surgeon can confidently assure the sufferer, is no longer believed to be an important question—that the preponderance of clinical testimony is against the old theory that heredity has any influence whatever upon the origin and course of such diseases.

The exact knowledge of the nature of the disease should be withheld from the patient as far as possible, and the use of the term "cancer" studiously avoided. You may designate the case a "malignant growth," a "tumor," a "sarcoma," or anything else except the dreaded word "cancer," without destroying the patient's hope of relief or cure. So powerful is the depressing influence of this fear of cancer that it has been many years since I have used the term in the presence of a patient. When the question is asked, "Is this a cancer?" a truthful description can be given of the nature of the disease without the use of this dreaded designation. We are often led to prescribe tonics in such cases, but hope is the very best one, and will effectually insure a tranquil nervous system, with all which that condition implies, and, in my judgment, we should never unnecessarily deprive the patient of its influence.

Medicinal agents have been brought forward from time to time, sanctioned by authorities, which cannot be reasonably ignored. While many of these are chiefly useful in their influence upon the mental condition of the patient, some of them decidedly influence the course of the disease.

Inoperable cancer of the breast, for example, has, in some cases, been arrested in its growth and infiltration of adjacent tissues diminished by hypodermic injections of 20 drops of a ten-per-cent. solution of the chlorid of anilin in dilute alcohol, repeated every second or third day. This treatment may be continued for several weeks or months. The usual antiseptic precautions are to be observed in the preparation of the skin at the point of injection, and of the hypodermic syringe. My attention was first called to this remedy by Dr. C. E. Bruce, who had secured marked improvement therefrom in an inoperable epithelioma of the tongue. I have elsewhere reported a case of recurrent disease of the right breast, in which a large, painful tumor, which was firmly attached to the chest-wall, became almost painless, reduced in size, and quite movable upon the thoracic wall, and its removal by operation became possible, and was advised. The patient, however, elected to continue the treatment which had induced such changes in the growth, and she left the hospital, and the subsequent history is unknown. I have no doubt, however, that the influence of the anilin was not permanent and, after a large trial of the plan in cases of cancerous breast, we can say that as a palliative measure only it is useful, and that it should not be neglected where ulceration has not yet occurred.

In an extensive cancerous disease of the tongue, marked improvement resulted from these injections, and the patient's life was prolonged many months, with much relief of pain, until near the termination of the history. There is never any serious reaction following these injections, and no local irritation at the point of puncture.

Methylene blue, administered in pills (gr. ii–v), in combination with arsenic (gr. $\frac{1}{60}$), has been recommended for cancer of internal organs, and improvement sometimes follows its use, especially when the disease is in some portion of the alimentary tract. This remedy causes no gastric disturbance, and may be given every six hours for an indefinite period. I have thoroughly tested its efficacy in a single case, in which the disease proved to be in the pancreas. For a time there was a mitigation of symptoms. In cancer of the stomach, its action is probably more pronounced, owing to the local effect of the drug.

In a paper read before the Medical Society of the State of New York in 1890, I described the method of using Chian turpentine in cancer as recommended by Professor Clay of Birmingham, and expressed the opinion that it might prove useful in some cases of uterine cancer. Experiments with it have been continued, and it is with regret that I must declare that no such results as Clay published have ever been observed in my practice. Its employment has been abandoned in the New York Skin and Cancer Hospital, and also in the London Cancer Hospital, where Mr. Jennings accorded it a thorough trial.

Many other remedies have been recommended by various writers, and it is not unreasonable to hope that new ones will be brought forward which will be worthy of trial in these inoperable cases, and even a specific for cancer may finally be discovered, as Sir James Paget has predicted. The preliminary tests of all such remedies should be made only upon inoperable cases, as we should never for a moment trust a patient's fate to such means, to the exclusion of operative procedures, when it is possible to accomplish complete removal of the neoplasm.

Surgical operation, in hopeless cases, may be indicated in two conditions: (1) To save important organs, and (2) to relieve the patient of a mass of diseased tissue. In disease of the orbit, for example, the unaffected eye may be saved for years by persistently removing the infiltrated border of the ulcer which is nearest to the healthy side. One of my patients now has perfect vision in the right eye, which would have been lost years ago had we neglected this precautionary operation.

The partial removal of a cancerous uterus by the curette results in a lessening of hemorrhage and fetid discharges, which not only disturb the patient, but are a prolific source of annoyance to the attendants. The same course may properly be adopted with a cancerous tongue, or the external portion of rectal cancer, or any portion of the body in which the personal comfort of the patient may be thereby increased. I have even removed incurable tumors of the breast for the same reason, and secured a decided relief of distressing symptoms by the operation. These exceptional instances, however, do not invalidate the rule that operations for cancer should never be attempted unless we are reasonably certain that a thoroughly complete removal of the tumor may be effected.

Before leaving the question of surgical operation, a few words may be added concerning the management of irremovable cancer of the rectum. The most troublesome symptoms in these cases are due to obstruction, and when the passage of rectal bougies fails to afford relief, the somewhat formidable operation of colotomy is performed for that purpose. It often happens that the strictured portion can be reached by the finger, and if so,

it should be used for dilatation, instead of rubber instruments of any kind. The surgeon may so regulate the direction and extent of the force employed by the finger as to avoid perforation or other dangerous laceration. This procedure should not be entrusted to the nurse, but should be repeated by the surgeon every few days, according to the necessities of each individual patient. In this way I have avoided colotomy in nearly every case, and the patient has remained comparatively free from the symptoms dependent upon stricture.

There are several suggestions worthy of mention under the head of local applications, antiseptic lotions, and deodorants. Three years ago, Dr. Henry Bahnson of Salem, N. C., called my attention to antipyrin as a dressing for cancerous ulcers, and it is an admirable application. It is dusted upon the ulcer at each dressing, and the surface is then covered with absorbent gauze or cotton in the usual manner. Its employment prevents offensive odors, and decidedly improves the general appearance of the ulcer. The only objection to it is its expensiveness, and it has since been demonstrated that antifebrin and some other coal-tar products are equally satisfactory.

Protonuclein has recently been recommended as a possible cure for cancer. A careful test of its effects when employed externally has thus far proven its value as a stimulating antiseptic application. It is too early to determine the exact place this preparation deserves in the treatment of cancer, or whether it is in any sense a remedy, but as a local application the powder is a valuable addition to the list, and is to be classed with aristol and iodoform for that purpose. I may here state that the use of iodoform in private practice has become an inexcusable offence since these new remedies have been introduced, and there is no further necessity for a surgeon to render himself a nuisance to everybody he meets by dressing a case with iodoform-gauze or -powder.

If an ointment-dressing be indicated, aristol, with vaselin of suitable strength, is among the best (gr. xx to ʒ ii to ℥ i). This or any other ointment-dressing will be more grateful to the patient if spread upon a thick layer of absorbent cotton, instead of lint or gauze. The cotton is more easily adapted to every inequality of the ulcerated surface, and, from its lightness and tendency to cling to the surface when moistened, will seldom be displaced. The employment of fuchsin and other anilin preparations is not desirable, because of the staining of the patient's clothing and bedding, while the results obtained are no more satisfactory than with other dressings.

In cancer of the uterus, a deodorizing lotion is of the first importance, and one containing eucalyptus is preferable to a plain antiseptic solution. The vagina may also be loosely packed with cotton tampons, saturated with a solution (five-per-cent.) of aristol in albolene or benzoinol, a dressing which the nurse can readily renew. A vulvar pad of finely prepared oakum is both absorbent, a good deodorant, and cheaper than cotton, and is equally useful in advanced cases of cancer of the rectum.

No mention would be made of the use of opiates in incurable cases, were it not for the fact that the question is often asked regarding the extent to which they should be administered. The reply to that query should be: Give enough opium or morphin (or other anodyne) to insure the patient's comfort, if possible, without danger from the drug itself, the frequency of the dose to be determined by the patient. Such cases as we are considering have passed beyond the point where the danger of the morphin-habit should be considered. Suppositories, when the disease affects pelvic organs, morphin (or cocain) locally when desirable, hypodermic injections when more general narcosis is required, are all humane measures, and to withhold them is cruel, and almost criminal.

The deepest interest has been manifested by the profession and the laity in the employment of toxins, especially those of erysipelas, as remedies for cancer. The theory is the natural outgrowth of the germ-theory and of the presumption that there is a cancer-microbe which cannot coexist with the more active one found in erysipelas. The antagonism between these two diseases has often been noted, and twenty years ago, Dr. Morgan, who attended the cancer-wards of the Middlesex Hospital, London, was accustomed to make a more favorable prognosis if an operation had been followed by erysipelas during the healing-process. There are instances on record where a supposed epithelioma of the skin has been cured by this acute dermatitis.

The employment of the erysipelas-toxin, however, is a different matter. I now have records of many cases treated by these injections. Not a single case has been cured; one has been greatly improved (the disease being internal and the diagnosis doubtful); some have been slightly improved; there have been several deaths accredited to the toxin, and in many instances the results were negative. At a later period, I shall publish the histories of such cases as occurred in my own

practice, and only refer thus briefly to the subject now to emphasize the fact that thus far we have not passed beyond the stage of experiment with this agent, and all theories and prognostications of to-day may finally require amendment and perhaps be abandoned altogether.

It is intended that these notes shall be considered merely suggestions, which may be familiar to every one who has the care of many cancer cases. However, the surgeon's duty often leads in the direction of palliative treatment, and there is no class of cases which is so worthy of such unsparing attention to the minutest details as that now under consideration.

We should not too readily relegate a patient to the list of incurables, but be guided by the fact that while an operation in the very early stage is likely to produce a permanent cure, the more advanced cases, under present methods of operation, often yield results which are as gratifying as they are unexpected.

PHLYCTENULAR OPHTHALMIA.

By T. C. EVANS, M.D.,
of Louisville, Ky.;
Lecturer on Ophthalmology and Laryngology in the Kentucky School of Medicine; Member of the Louisville Clinical and Surgical Societies.

Phlyctenular ophthalmia is much more frequent in childhood than in adult life. It occurs commonly among the poor and underfed, especially those who live in overcrowded quarters with unsanitary surroundings, and in children who are the subjects of what we call "lymphatism." The percentage of cases occurring in the negro race is not greater than in the Caucasian, who have like surroundings. The frequency with which it complicates, or is complicated by, eczema, has led most of the recent investigators to regard it as an eczema of the conjunctiva and cornea. The phlyctenule itself consists primarily of a mass of lymphoid cells, beneath the epithelial layer of the conjunctiva or cornea. In the cornea this exudation or infiltration of cells usually takes place around a terminal filament of one of the corneal nerves. The central cells in the phlyctenule undergo necrotic changes, the epithelium over its surface is destroyed, and the papule or phlyctenule is succeeded by a small, crater-like ulcer. The hygienic surroundings, the general nutrition of the patient, the location of the ulcer, and the character of the microbic infection, etc., will determine whether the ulcer will speedily heal, remain stationary, or indolent, or become progressive and be complicated by an opacity or perforation. The relapses and recurrences of the disease, which are of common occurrence, are due to the formation of fresh phlyctenules. Each phlyctenule is from two to three millimeters in diameter, and each has its own area of congestion. The nearer they approach the cornea the more serious do they become, and the more unfavorable the prognosis in regard to duration, pain, and final termination. When the lesion is entirely within the conjunctiva, the process subsides rapidly after the ulcer is formed, and the healing is complete in from one to two weeks. When the lesion is in the cornea, the healing process is preceded by the development of blood-vessels from the limbus.

The subjective symptoms of the disease when it is confined to the conjunctiva are very slight, perhaps only an itching or burning sensation. When it affects the limbus or the cornea the pain is severe, both in the eye and in the supraorbital region; but the symptom most complained of is the photophobia, which is often intense, causing the child to bury its head in its mother's lap or in the bedclothing for hours and days together. The dangers from the disease are from perforation of the cornea, with prolapse of the iris; infection of the ulcer with hypopyon, iritis, or irido-cyclitis; corneal opacities; facets of the cornea with irregular astigmatism.

The ensemble of symptoms that accompany phlyctenular disease, the photophobia, the profuse lachrymation, the blepharospasm, the eczema, the nasal discharge and obstruction, together with the attitude of the patient, are so characteristic that the diagnosis is made even before the eye itself is examined.

In adults and tractable children a satisfactory examination can easily be made after the instillation of a few drops of a four-per-cent. solution of cocain; but in refractory children with blepharospasm it is better to resort at once to the use of chloroform rather than have a "scene," which always follows when an attempt is made to hold the child and force the lids open with retractors.

The treatment is local and general. The character and details of the local treatment will of course be determined by the stage, location, and complications of the lesion. The first indication is to keep the eye thoroughly cleansed by frequent washing with a solution of boric acid. If the patient is old enough the eye should be protected by smoked glasses. In the uncomplicated cases the old-time Pagenstecker's ointment of the yellow oxid of mercury still holds the first place in local therapeutics, though now no one in this country uses it in the strength advised by him in his article on the subject, *viz.*: from 30 to 60

grains to the ounce, though European and some of the American surgeons still advise from 10 to 24 grains to the ounce. Children tolerate the stronger ointments better than adults. I usually prescribe 1 grain to the dram, or 8 grains to the ounce, which rarely causes pain. In compounding the prescription it is important that the amorphous yellow oxid and not the crystals be used, and that it be rubbed down with a few drops of olive-oil before adding it to the base, unless the druggist is in the habit of compounding oculist's prescriptions. It is always well to specify this in ordering. The ointment should be applied inside the lids with a spatula or brush once or twice a day. Probably next in importance comes the instillation of eserin; this may be used from four to six times a day along with the ointment or other treatment. I rarely use the eserin-solution stronger than one-half grain to the ounce; more frequently one-fourth grain to the ounce. I think no one who has tried the effect of a two-grain solution in his own eye will likely prescribe it for his patients. While atropin is recommended in most of the text-books, it is contraindicated except in cases complicated by perforation or iritis. When the phlyctenules are confined entirely to the conjunctiva, the insufflation of calomel has been highly recommended. In the infected and indolent ulcer, more radical measures are indicated, the actual cautery or galvanocautery, or curettement, with the application of tincture of iodin or carbolic acid to its base. For the relief of the blepharospasm, dipping the child's head and face in a basin of cold water, and divulsion of the orbicular muscle with lid-retractors, are the means generally advised, neither of which can be carried out in private practice. The photophobia is partially relieved by the instillation of cocain, but the effect is transient, and I believe its constant and continued use retards the healing of the ulcers, and that it should not be used except for making an examination of the eye.

I have recently had considerable experience with subconjunctival injections of the bichlorid of mercury in phlyctenular ulcers of the cornea, with marked photophobia. It seems to limit the microbic invasion, and hasten the reparation-process, and very markedly lessens the photophobia. In several well-marked cases the patients have ceased to complain of the photophobia after the first injection. I inject from 5 to 15 minims of a 1–3000 solution. The eye is first thoroughly cocainized, and the injection is made with the ordinary hypodermic syringe. The injection of this amount of fluid into the cellular tissue will cause considerable ballooning of the conjunctiva, but the fluid is rapidly absorbed. The pain during and after the operation is as a rule inconsiderable. The injection is repeated in forty-eight hours. Whether the results are due to the therapeutic or antiseptic action of the mercury, or to the mechanical action of the fluid in flushing the lymphatics, has not been definitely determined.

The constitutional treatment is more prophylactic than curative in so far as the eye is concerned. When it is possible the improvement of the hygienic surroundings of the patient is of the first importance, but a large proportion, in fact the majority, of these unfortunates are surrounded by unsanitary conditions that are beyond the control of both the patient and the physician. The accompanying eczema should of course receive the appropriate treatment. The general nutrition should be looked after, cod-liver oil alone, or combined with the iodid of iron, is indicated in many of the cases. The discharge from the nose, which in children constitutes a troublesome and unsightly complication, is due not to disease of the nasal cavities but adenoid growths in the naso-pharynx. The removal of the growths must be accomplished by surgical means, preferably I think by the Goettstein's curette. It is impossible to remove or reduce them by any form of medication, either local or general, and to treat them expectantly is to subject the patient not only to the dangers of recurring attacks of phlyctenular inflammation, but to the whole catalogue of complications that follow on these hypertrophies. The faucial tonsils are also often hypertrophied in patients affected with phlyctenular disease. Their removal will add much to the patient's comfort, though the danger from these is not nearly so great as in the case of the pharyngeal tonsil.

THE USE OF PERMANGANATE OF ZINC IN THE TREATMENT OF GONORRHEA, WITH A REPORT OF FIFTY CASES.

BY A. S. HOTALING, M.D.,
OF BALTIMORE, MD.;
RESIDENT PHYSICIAN BAY VIEW HOSPITAL.

ONE who has had experience in the treatment of a large number of cases of gonorrhea knows how surely, as a rule, occasional failure follows one routine line, no matter how faithfully carried out. Absolute rules of practice cannot possibly be laid down in such a manner as to be applicable to every case and condition that may arise in the progress and extension of urethritis. The remedy which has given me the most satisfaction

in the largest number of cases is permanganate of zinc. It is a crystalline substance resembling permanganate of potash, and is very readily soluble in water. The drug in my hands has proven equally successful in the treatment of both acute and chronic cases. One remarkable characteristic of its action is the almost total absence of irritation following its use, the patient seldom complaining of pain.

Its effect is discernible almost immediately, the discharge in the majority of cases becoming greatly reduced after a few injections. The method of treatment is simple.

After the stage of acute inflammation has subsided, the injections are made four and five times a day after urination, with an ordinary blunt-pointed hard-rubber syringe, with a capacity of from three to four drams.

My rule is to begin with a solution of one-half grain to the ounce of water, gradually increasing it to one and a half grains. An alkaline diuretic is given, and the hygienic part of the treatment, which is of the utmost importance, is followed closely in every case.

The treatment was under my personal supervision, instead of being conducted by the patient.

I do not recommend permanganate of zinc as a cureall, but a perusal of the following summary of fifty cases will, I think, illustrate the value and utility of the drug. It might be advisable to state that the permanency of the cure was proven in nearly every case by the "two-glass test" and microscope.

In thirty-three cases it was the first attack of gonorrhea. The average duration of urethritis before the commencement of treatment was about three weeks. The average cessation of discharge after commencing the injections was nine days. Cure was pronounced permanent in an average of twenty days after treatment began.

In the above cases there were two failures; one where the injections were discontinued owing to the gonorrhea being complicated by orchitis. In the other the injections seemed to have no effect on the discharge, and the patient was eventually cured by another line of treatment. Of the remaining cases, ten had had previous attacks, and seven were chronic when they came under my observation in the hospital.

The average duration of the discharge in the cases with previous attacks, the cessation of discharge, and permanency of cure were practically the same as in the thirty-three cases first cited. Of these four failed to yield to permanganate of zinc, three being complicated by stricture. Cure was completed in these cases by the use of sounds after injections were discontinued, and one still remains in hospital, no success as yet having followed any line of treatment. The chronic cases had had gonorrhea on an average for six months, and in five cases success followed the use of permanganate of zinc even more rapidly than in the acute.

The two remaining were complicated by stricture and patches of granulation..

While the permanganate of zinc caused a cessation of the discharge, the urine, when voided, still contained shreds from the urethra.

This was cured under proper treatment.

[Since this article was first written, I have had eight additional cases, six acute and two chronic, all of which were cured by permanganate-of-zinc injections, making a permanent cure in fifty out of fifty-eight cases treated.]

IMPROVED METHOD OF EXPLORING THE THORACIC CAVITY.[1]

By J. McFADDEN GASTON, M.D.,
OF ATLANTA, GA.

Quenu, at the suggestion of Estlander, first executed section of the ribs without resecting them, while Delorme has improved upon this idea of a trap-door to reach the contents of the chest.

The process described by Delorme consists essentially in the formation of the flap from the soft parts of the thoracic wall and the ribs, which, when retracted, affords wide access to the field of operation. After the completion of the operation, the flap is replaced and sutured to the thoracic wall. The flap is formed as follows: An incision representing the three sides of a rectangle is made in the region between the third and sixth ribs. The base of the flap, then formed, is directed posteriorly and above, and its upper and lower margins run parallel with the ribs, and extend from the axillary border of the scapula to within three fingerbreadths of the sternum. At the anterior margin of this flap, the ribs and intercostal muscles are divided, while at the posterior margin only the ribs are divided to a limited extent. The flap is then loosened at its upper and lower margins and thrown back. This operation has been used by Delorme in a tuberculous abscess of the chest-wall, which perforated into the thoracic cavity, also in a fatal stab-wound of the chest.

Charles E. Jennings of London performs a similar operation for pneumonectomy, demon-

[1] Read before the American Surgical Association at Detroit, May 27, 1896.

strating it on the dead body. He makes an incision four inches in length, parallel to the lower border of the first rib, and carried outward toward the coracoid process. The skin, fascia, and pectoralis major are divided. A vertical incision must be made from the third costo-chondral junction below to the inner extremity of the horizontal incision above. The upper border of the pectoralis minor having been depressed, the second rib must be divided, first close to the outer extremity of the horizontal incision, and then through its chondral attachment. The intercostal muscles must be divided in the lines of the cutaneous incisions; a flap consisting of skin, fascia, pectoralis major, and part of the second rib and intercostal muscles can then be thrown down and the parietal layers of the pleura can be divided. This gives ample space for an operator's hand with the partial removal and replacement of one rib.

D. Lowson of Hull, England, made an incision from the midsternum along the course of the second rib, through the pectoral muscle, nearly to the edge of the axillary fold. From the inner end of this, he also cut for two inches downward along the middle of the sternum. The skin and muscle being reflected from the second and third ribs, the external intercostal muscles were separated above and below. The ribs were divided through the cartilage internally, and the bone externally.

The exposure of the cavity of the chest with the mediastinum may be most satisfactorily accomplished by the following procedure, for effecting a trap-door opening through the thoracic wall. The arm should be raised above the head. An incision is made in the mid-axillary line, directly downward, from the third to the eighth rib, inclusive or exclusive, without dividing the pleural lining. The first transverse incision is from the upper extremity of the perpendicular incision along the upper border of the third or fourth rib, the second from the lower extremity along the border of the seventh or eighth rib, as may be requisite, extending in front to the costal cartilage. Any bleeding should be controlled before dividing the parietal pleura in making either of these incisions. Scissors which have a blunt point on the internal blade may be used for dividing the pleura in each line, and if the lungs have not been collapsed previously, this will occur upon the entrance of the air into the chest. Upon elevating the detached margin of this flap, which includes all the structures of the thoracic wall, it will be found that the trap-door opens upon the hinges formed by the costal cartilage, and admits of thorough examination of all parts of the chest, including the mediastinum on the side of the operation.

The advantages claimed for this modification of the trap-door principle of exploration are the great simplicity in making the perpendicular axillary incision through tissues involving no complications, and the division of the ribs in a single line only.

It is evident that those who have adopted measures for gaining access to the thoracic cavity by a trap-door, have overlooked the advantages of using the costal cartilages for the hinges of the shutter.

So far as my investigation extends, this is the first occasion upon which this view has been presented to the medical profession.

NOTE.—The field of operation is so free from anything to complicate this exploration, whether for troubles of the lungs, heart, arteries, or mediastinum, that it should not require any special training for a surgeon to make this trap-door into the chest.

CLINICAL MEMORANDA.

LEPROSY.

BY W. T. ENGLISH, M.D.,
OF PITTSBURG, PA.

A MAN aged forty years, birthplace Pittsburg, Pa., height 5 ft. 9 in., weight about 130 pounds, of excellent family history, was admitted to the medical ward of the South Side Hospital, June 30, 1896, and examined by me in the presence of the internes.

His story was that he enjoyed good health in his early life, and when he became twenty years of age he embarked with an engineer-corps for South America. While engaged in the vicinity of Para, Brazil, his duties compelled him to be in the presence of miasmatic swamps, and at night he rested upon the ground. At the expiration of about ten months, he was stricken with a febrile ailment that prostrated him for several weeks. This malady was described as one of debility, weariness, chilliness, failure of appetite, and lassitude, akin to malarial poisoning. At about the same time the company with which he was engaged was stranded, and while awaiting means and tidings from his home he recovered his lost strength, so that he returned after the lapse of one year to his native place, apparently in robust health. This was in 1879. He married in 1881 in Indiana county, Pa. After three years of good health, spots or blotches appeared upon the skin in various parts of the body. Those upon the superciliary region speedily became red and ulcerated, destroying the hair of the brows. The surface of the face, neck, and ears became a deep red, and the ridges deepened until the whole countenance assumed a leonine fierceness. The hair distributed to the face is remarkable for its sparseness, but that upon the scalp is

well preserved. An accidental fall from a wagon is said to account for a depressed nasal septum. Upon the shoulders, arms, and forearms, the discoloration is at present of a brownish, coppery color, the eruption is irregular in form, and the skin is roughened. There is more or less desquamation and exfoliation of the cuticle upon the regions of the discolorations, but the surface is dry except when denuded. The patient relates that these spots began at and proceeded from the extremities, and that from circular blotches they became irregular by running together. It is thus established that the maculæ came first in a somewhat distinct form, and were afterward followed by more extended pigmentation. A certain

FIG. 1.

SHOWING DEFORMITIES OF FEATURES AND HANDS.

want of sensation or numbness is observed in the discolored portions, but upon the hands and forearms there is marked anesthesia. This is true also of the feet and legs to the knees. Nevertheless, he sometimes complains of neuralgic pains, and at frequent intervals he experiences deep-seated tingling, pricking, and burning pains in the palms and in the soles of his feet. The subcutaneous structures, including the muscles, are now becoming atrophied, especially the fingers and toes. The digits are thin, and are rolled in against the palm, while the nails assume a claw-like form. The toes of the left foot are forced down against the sole. There are depressions in the sites of the thenar eminences, due to defective nutrition of the muscles. The mucous membranes of the nose, throat, and mouth are congested and prone to ulcerate. The voice is husky. The conjunctiva is deep-red, and thickened and inflamed, and the eyes are overflowing with a tear-like secretion.

The patient traces the deformity on the foot to the appearance upon the sole of a hardened mass, which he attempted to remove, supposing it to be a corn, but cut too deeply and occasioned a suppurating sore, which was followed by contraction of the tendons. The warped condition of the hands he accounts for by experiences with burns and scalds against which he cannot guard, because of absence of sensation in these parts. Numerous cicatrices exist in the upper and lower extremities that are thus explained.

Further examination reveals the function of digestion fairly well maintained. The secretions are normal in quantity, chemically and microscopically. The mind is clear and active, and the spirits apparently cheerful. The circulation is good in the main, but the extremities are below normal temperature. The pulse is full, regular, and from seventy-five to ninety per minute, quickly changing with position and mental influence. The temperature observes the normal daily fluctuations and the usual altitude. Notwithstanding the anesthetic condition of the lower extremities, the patient maintains the erect posture and walks with reasonable certainty without the aid of sight. At present there are several denuded spots upon his hands which present unhealthy, purplish-hued surfaces, with a thin discharge glistening upon the surface, but occasion the patient no discomfort further than their un-

FIG. 2.

SHOWING MACULÆ ON UPPER EXTREMITIES AND BODY.

sightliness. Left knee-clonus is much exaggerated; the right is only slightly increased beyond the normal.

The diagnosis I have made is lepra anesthetica. Although there is some of the symptomatology of the tubercular form (lepra tuberculosa), it is very common to find these conditions intermingle. Dr. W. C. Foster, who has considerable knowledge of the disease, and also Dr. E. G. Matson, who visited several resorts of the lepers, confirm me in my opinion.

Microscopic examinations, made by Dr. T. L. Disque, of the secretions from the nose and eyes, further corroborate the assumption by discovering the bacilli of leprosy.

Besides the proof thus adduced, the manner of its acquisition appears very plain in the story as told by the patient. His sojourn in a leprous country, and the daily contact with the miasm that is the accredited cause of the malady, will satisfy those who believe it can only thus be brought about. To those who assume that it is contagious there is still evidence sufficient for their satisfaction in the fact that he was often in close relations with individuals suffering from leprosy. It will be noted that this is an incomplete picture of leprosy as it appears in the minds of those who know of it only by indirect knowledge. The stage of gangrenous sloughing has not yet fully developed. The slightest injury or abrasion may precipitate it. Already one finger has gone, as a result of a bruise, and the first phalanx of another digit is also wanting, from a cause too slight to occasion such a loss in one not affected with this malady. A singular persistence in like accounts prevails among all of those who are thus dismembered and deformed from leprotic disease. No matter how trivial or severe the defect, it is rare to find it attributed to its true cause by the subject.

The opportunity to observe this case included but a few days, as his friends speedily took him away from the observation and reach of those who discovered his malady.

To-day, leprosy is more promising of its harvest of death in America than at any previous point in its history. Hyde[1] gives a summary of cases of leprosy in the United States for 1894.

Statistics prove that our own countrymen have ceased to show the immunity from attacks of leprosy that they could once claim, and this case seems to be one in point.

A CASE OF HYDATID CYST IN THE PROSTATE GLAND, COMPLICATED WITH CYSTS IN THE PERITONEAL CAVITY AND LIVER.

BY WOLRAD WINTERBERG, M.D.,
OF SAN FRANCISCO.

THE patient was a carpenter, fifty-one years of age, married, and the father of six living, healthy children. He had never been sick until within two years, when he first began to be troubled with difficult micturition. Lately, his condition became so bad that he applied for medical assistance. His physician resorted to the use of the catheter, and when the patient got still worse he sent him to me for treatment in May, 1895. Patient, who was a tall, slim subject, looked pale and was extremely nervous. He told me that for over a year he had not had a good night's rest on account of his frequent desire to pass his urine. He only could void a very small quantity at a time, and sometimes none at all, so that the catheter had to be used.

He was losing strength and flesh and was unable to work at his trade. Inspection and palpation gave negative results, but digital exploration of the rectum revealed the presence of a large tumor about one inch above the anal orifice; it was sessile, immovable, and felt like a solid mass, which extended over the site of the prostate so high up that only by using considerable force could the examining finger reach the upper margin; laterally it extended about two inches from each side of the median line at its widest portion; it was perfectly smooth and regular in shape, and very tender on pressure.

By means of a No. 18 Nelaton catheter, the introduction of which caused a good deal of pain to the patient, about four ounces of urine were withdrawn. This was very turbid, of an ammoniacal odor, with an alkaline reaction, and contained much mucus and pus. My diagnosis was hypertrophy of the prostate. After two weeks of unsuccessful treatment by mechanical and medical means the patient insisted on being castrated, which operation I had previously held out to him as a last resort for the cure of his trouble.

On June 1st this operation was performed, after which, still during anesthesia, a silver catheter, No. 30, could be passed, and the bladder freely irrigated with a boric-acid solution; the urine was ordered to be drawn by means of a Nelaton catheter every three hours. The operation had been done about five o'clock in the afternoon, and about midnight I was called to the hospital, in which the patient had been placed, because the attendant was unable to catheterize the patient who suffered intensely from retention of urine. I found it necessary to chloroform the patient who had become so irritable that he was unable to control himself. I then evacuated the bladder by means of a soft catheter, which I afterward left *in situ*. In spite of this device I was again compelled to resort to chloroform on the following day because the permanent catheter failed to void the urine. From this time on I had to chloroform the patient about three times in twenty-four hours, and withdraw the urine by means of a silver catheter, since a soft catheter did not accomplish the desired results. This treatment was continued for a whole week, at the end of which I was again summoned to the hospital at midnight to see the patient. I found him in great agony caused by retention of urine and proceeded to withdraw it in the usual way, but utterly failed to get a drop of urine even with a metal catheter. I had the patient placed on the operating-table, and with the aid of a scalpel and catheter performed perineal section. On passing the finger through the perineal aperture I felt a large, tense, but somewhat compressible tumor, extending on a broad base from the prostatic portion of the urethra so far up into the cavity of the bladder, that the highest margin could not be reached by the tip of the finger; in front it was in close approximation to the anterior wall of the bladder; a very small quantity of urine followed the withdrawn finger, but when the catheter was introduced to a considerable depth a large quantity was immediately withdrawn. The bladder was then irrigated, a No. 18 soft catheter introduced, and replaced on the following day by a Nelaton No. 36. The patient from this time enjoyed relative comfort, but he had become highly emaciated, his appetite being very poor, the urine was very offensive, and the temperature ranged between 101 and 102°. The bladder was irrigated every three hours with potassium permanganate, and a tonic of iron, quinia, strychnia, and phosphoric acid administered.

On the 15th of June, while washing the bladder, I noticed that on lowering the funnel only a small fraction

[1] *American Journal of Medical Sciences*, No. 108, p. 251.

of the fluid injected into the bladder was returned; I refilled the funnel and the fluid disappeared rapidly on elevating the receptacle, but did not return. Presently the patient told me that he felt some fluid escaping from the rectum. I handed the funnel to an assistant with instructions to pour in some more fluid and elevate it, while I was watching the anal orifice. Very soon the permanganate-solution made its appearance through the anus and washed out the sac of a hydatid cyst. I then proceeded to a digital exploration of the rectum, and discovered an opening in the tumor so high up that it could just be reached by the tip of the finger. The result of a similar exploration of the bladder, through the perineal aperture, was negative; nevertheless, the presence of a vesico-rectal fistula had been clearly demonstrated, and, furthermore, this fistula had been caused by sloughing due to pressure from a hydatid cyst in the prostate gland.

Daughter-cysts were discharged at intervals, not only from the rectum but also from the bladder, which was irrigated hourly with a weak permanganate-solution, because a very offensive odor permeated the atmosphere of the sick-room; the rectum was washed twice a day with warm water. The temperature was still between 101 and 102°; pulse, 100, fairly strong and regular; anorexia; tongue heavily coated; extreme emaciation. After continuing the expectant treatment for about a week without any noticeable improvement, I decided to perform suprapubic cystotomy in order to get a clear inside-view of the bladder, digital exploration remaining negative, because the finger did not reach the fundus of the bladder, and the cystoscope was unavailable because there was no possibility of distending the bladder with the necessary amount of fluid owing to the presence of the vesico-rectal fistula. On the 22d of June the operation was performed, but besides a general hypertrophy and inflammatory condition, nothing abnormal was found in the walls of the bladder; in the upper portion of the prostatic urethra an opening was found through which the finger could be forced into the rectum; some empty cyst-sacs were found in the fistulous tract and detached. By palpation of the walls of the bladder I then discovered a tumor in the peritoneal cavity, close to the right side of the bladder, and about at the height of the fundus. The abdominal wall was incised directly over this tumor, which was found to be attached by a small pedicle to the omentum. It consisted of two ovoid masses, each about the size of a chicken's egg, and agglutinated to each other with their long axes at right angles. After the removal of this mass the palpating finger again detected the presence of some tumors lying closely together in the right iliac fossa. As these tumors could not be removed through the same opening in the abdominal wall, and the patient was thought to be too weak to be subjected to any more prolonged surgical operation, further proceedings were postponed to a more favorable time. The bladder was closed by a treble row of catgut-sutures, the first row uniting the muscularis and mucosa, the two following being seroso-serous. The incision through the abdominal wall was packed with iodoform-gauze, and three days later when there was no leakage of urine from the bladder, it was closed with silkworm-gut sutures. The other incision was closed after Olshausen's method. Irrigation of bladder and rectum continued as before. The perineal fistula was closing rapidly, and after two weeks no more urine was discharged through the rectum. The catheter had been removed from the boutonnière, and patient was able to void urine through the urethra. Temperature normal. Urine free from pus; general condition very much improved; appetite good. Three weeks after suprapubic cystotomy both openings into the bladder were perfectly closed, so that every drop of urine was passed through the natural outlet. Patient could hold the urine for about two hours. After another week's constant improvement in his general condition, patient was again placed on the operating-table for the removal of the remaining tumors. The abdominal wall was incised directly over the tumor which could under anesthesia be easily mapped out in the right iliac fossa. This tumor was found to be firmly adherent all around; it was extraperitoneal, but on that side which pointed toward the median line, it had encroached upon the peritoneum in such a way as to protrude into the peritoneal cavity. While attempting to detach it from the peritoneum this organ was torn. The accident, although unintentional, was no cause of regret, because through the opening thus made I was enabled to remove two other tumors, each about the size of a medium-sized orange, and about two-thirds the dimensions of the first one, which were more or less adherent to the omentum. By further digital exploration through the peritoneal opening I then discovered a large tumor, attached by a broad base to the lower surface of the liver, extending in its principal dimensions backward and upward. I incised the abdominal wall directly over the tumor and sutured it to the abdominal incision. Five days later the tumor was opened and evacuated; it contained about a quart of liquid and daughter-cysts, partly empty, partly filled. By means of a dull curette-like instrument, with a long handle, of which fully ten inches could be passed into the cavity in a latero-posterior direction, so much of the cyst-sac as could be reached was detached and washed out; the cavity was then stuffed with iodoform-gauze, and a liberal amount of absorbent cotton completed the dressing. On each following day this dressing was renewed after thoroughly irrigating the cavity. For about two weeks the washings brought out regularly small daughter-cysts and fragments of the cyst-sac; gradually these discharges diminished in quantity until finally the irrigating fluid was returned clear, still there was a little whitish discharge noticeable on removing the dressing. About six weeks after the operation the patient felt strong enough to leave the bed. Toward the end of December the fistula had closed, but it opened again after a week, discharged for about five days, and then closed definitely. The patient is now perfectly well and able to work at his trade. The case, apart from being very interesting from a pathological point of view, is highly instructive in a clinical sense.

Fortunately for the patient, but not for the interests of science, an autopsy was out of the question in this case, but nevertheless I think I can advance some very good reasons for corroborating the correctness of my views:

(1) The location of the tumor, which extended symmetrically from the central site of the prostate in all directions. (2) Perforation into the bladder took place at the lower end of the upper third of the prostatic portion of the urethra. (3) Relative incontinence of urine persisted for several months after the recto-vesical fistula as well as the suprapubic and median openings were closed. This relative incontinence proves that the sphincter vesicæ, which is found in the substance of the prostate, had been destroyed to a certain extent by sloughing caused by pressure, but was later regenerated.

The clinical lesson taught by this case is, that before resorting to the treatment of prostatic hypertrophy by castration, we ought to use the greatest care and circumspection in excluding all possible errors of diagnosis. Considering the clinical symptoms and history in this case, I felt justified in excluding carcinoma and tuberculous disease of the gland. I confess that the possibility of the presence of a hydatid cyst in that organ never presented itself to my mind. If it had, the character of the tumor might possibly have been determined by puncturing it and microscopically demonstrating the hooklets. In the absence of such evidence, if the withdrawn fluid be clear, containing no albumen, but a large percentage of sodium chlorid and succinic acid, the diagnosis of hydatid cysts will be sure.

The presence of albumen, uric-acid salts, and urea, does not refute the diagnosis of hydatid cysts, but in the absence of other conclusive proof the case will remain doubtful.

The cystoscope would have been useless in my case, for we cannot expect to make the contents of a cystic tumor, covered by thick, opaque walls, visible by the application of this instrument. There were no cysts attached to the walls of the bladder as was seen after suprapubic cystotomy had been done; it was only after rupture of the prostate that daughter-cysts found their way into the bladder and were discharged, thus leaving no doubt about the nature of the case.

Highly regretable as the useless mutilation of the patient in this instance necessarily must be, there is one element of consolation, which, of course, is of no scientific value, to be found in the fact that the patient is not worried by the loss of his sexual organs, and seems to be perfectly satisfied with his present condition.

I may mention, in this connection, as a noteworthy complication, that on the right side there was a hydrocele, containing about six ounces of fluid. The testicle of the right side was about twice as large as the one of the left, which was apparently only two-thirds, or less, of the normal size. Microscopic examination failed to show any structural changes in either of these organs.

The vesico-rectal fistula, in this case, must, in my opinion, have formed a triangle, with its base upward and the apex pointing down, so that a valve-like flap was formed, which afterward facilitated the healing-process considerably, so that after a week's duration no more leakage of urine into the rectum was perceptible.

It is a noteworthy fact that a liver-cyst of such dimensions as found in this case should not have caused any symptoms which would have led to an earlier diagnosis of its existence. The explanation for this is undoubtedly to be found in the peculiar location of the tumor, which could freely expand under the liver and behind the intestines, without compressing any vital organs in such a way as to interfere with their functions and thus to produce marked disturbances in the organism. The only symptom which might have enabled one to find the tumor was a feeling of fulness in the hypochondriac region, and of this the patient only informed me after the cyst had been evacuated.

AN ADDRESS.

THE HUXLEY LECTURE.[1]

BY PROFESSOR MICHAEL FOSTER, M.D.

THE lecturer began by stating that he proposed to make his lecture different in character from, and, as it were, a sort of preface to, those which would follow. It seemed fitting that this first lecture should take account of the condition of science in the day when Huxley took his seat as a student at the school of Charing-cross, as compared with its condition now; but the lecturer shrank from attempting any general survey of the progress of science, as affecting the profession, during the fifty years which had intervened.

The first theme was the special bearing on the profession of the advance of science, which became apparent from a survey of the studies of the medical student in the days of Huxley's studentship, and a comparison of these with the like studies of the present day. An examination of the schedule of compulsory studies issued by the Royal College of Surgeons in the early forties, showed that of the sciences ancillary or preparatory to medicine, no instruction was provided in physics, and very little in chemistry, that little coming in the middle of the student's course, and being instructed by lectures only. Of general biology, nothing was demanded by the College of Surgeons, save what incidentally came in Materia Medica, and only a little botany by the Company of Apothecaries. On the other hand, the greater part of each of the three years of study, right to the end of the course, was taken up by what was called anatomy and physiology, but was, in the main, human anatomy, which alone of the studies was taught practically—namely, in the dissecting-room.

The second theme was the complexity of the progress of science, and the intricacy of the bearings of even a single scientific observation. No one observation or experiment could be judged as it stood by itself alone. Its effects and so its worth would depend not alone or even chiefly on its own intrinsic merits, but also on the way in which it joined hands with its fellows. The bearings of a new truth could not be rightly expounded immediately on its birth; its value hung on that which went before, and its power rested on that which was to come. In illustration of this, the lecturer proposed to consider the bearings of some three or four physiological discover-

[1] Abstract of address delivered at Charing-cross Hospital Medical School, London, Eng., October 5, 1896.

ies, some three or four observations each the result of experiments on living animals made in the years of, or in those following closely upon, Huxley's studentship.

The first observation was made by the brothers Weber, in 1845, in Huxley's last year, in which they showed that electric stimulation of the vagus-nerve stopped the heart in diastole, or, as we now say, inhibited it. If the question were asked, What had been the gain of that experiment? the answer would be that its effects had gone far and wide into the whole of physiology, and thus into the whole of medicine, and, indeed, had not yet come to an end. It had enabled us to understand, and that more and more clearly as succeeding observations had illuminated the original one, how the heart is governed by the central nervous system, a matter which, before Weber's experiment, was merely the subject of fruitless contention, and which had shown us how we, too, might control it. It had become, in the hands of the physiologists, a method enabling them to solve problems which without its aid had baffled them. But perhaps its most far-reaching effects, and those which even to-day cannot be fully measured, lay in its having started a pregnant idea—that of regarding the phenomena of life as the outcome of opposing and antagonistic forces, now carefully balanced, now swaying on this side and on that, an idea which had been a guiding light, even if sometimes misused, in our advancing knowledge of the processes both of health and disease, not only in the tissues of the nervous system, but in all those of the body.

The next such observation to which the lecturer called attention was that by Claude Bernard, in 1851, when he showed that section of the cervical sympathetic led to fulness of the blood-vessels in the head and face. The same experiment had been made a century or so before, but dropped stillborn—the fulness of its time had not yet come. In Bernard's hand the experiment became the origin, the beginning, and so the cause of all that advance of physiological and medical knowledge which was indicated by the word "vaso-motor." There could be no need to dwell on how this knowledge had entered into and modified our conceptions of physiological and pathological events, general and special, or how, again and again, it came to the front in therapeutic endeavors. Yet, when Huxley was a student the very basis of that knowledge was not as yet assured; only the most advanced were prepared to admit that the blood-vessels had muscular walls. Bernard's experiment had its strength in Heule's histological demonstration, but had in turn been of such effect that could we draw from the web of the medical knowledge of to-day all that had come of it, that knowledge would become in a large measure a confused tangle—so much do we owe to one single experiment.

The lecturer next dwelt on Bernard's discovery in 1850 of glycogen. The effects of that one observation were again manifold. It had an immediate and direct effect on medicine in throwing light on that terrible disease diabetes, a light which, even if it had not fulfilled the hopes which were first held, had at least, by pointing the way toward alleviation, saved much suffering and greatly prolonged valuable life. But this had been only one and not the greatest of its effects. It had had the most powerful influence as the mother of ideas. It was the first clear direct proof of the synthetic powers of the animal body, and as such had been the parent of the great additions to knowledge, more especially in these latter days. But its chief influence had been, perhaps, that by showing how a tissue in a hidden way profoundly affected the blood, apart from any visible event, such as an outward blow, of secretion-fluid, or a muscular contraction, or a nervous impulse. It was the first exemplar of what we now call "internal secretion." Bernard's experiment had the relation of a father to a son toward all those researches on the thyroid and other organs which in our day had thrown so much light on the inner workings of the body, and added such powerful weapons to the medical armory; and, further, doubling, so to speak, on itself, had led us to a knowledge of the work of the pancreas, in the story of sugar, a knowledge which had cleared up much and promised still more.

The last illustration taken was Waller's observations in 1850 and 1852 on the dependence of the nutrition of a nerve-fiber on its continuity with the body of the nerve-cell of which it is a process. This discovery, also the direct gain of experiments on animals, was in itself alone of value as a contribution to our knowledge of the influences which the central parts of a cell surrounding the nucleus exert on other parts of the cell, and perhaps we did not as yet fully realize all that the observation taught. A still greater effect, however, on the progress of physiology and of medicine had resulted from the guidance and support which it had given to the experimental results of stimulating the cerebral cortex, an effect which yet another result, that gained by the application of the silver-method to the histology of the nervous system, was converting into an advance of knowledge of momentous importance. So far as could be seen, the Wallerian degeneration by itself, the experimental results of stimulation by themselves without anatomical support, and the results of the silver-method by themselves, would each of them have gone but very little way; the union of the three had produced, and was producing, a movement of theoretical and practical advance, whose limits could not be foreseen.

The lecturer concluded by a few words concerning the influence exerted by Huxley on physiology and so on medicine. Debarred by circumstances from fulfilling his early desire to become a physiologist, Huxley was ever ready with a helping hand to others. If English physiology stood at the present day, as it appeared to do, in a sound and hopeful position, that was in large measure due to Huxley's direct and indirect influence.

CLINICAL LECTURE.

TUBERCULOSIS OF BREAST AND LYMPH-NODES.[1]

By ROSWELL PARK, A.M., M.D.,
of Buffalo, N. Y.;
Professor of Surgery, University of Buffalo.

This little girl, twelve years of age, has not been well since she was vaccinated, four or five years ago. She

[1] Clinical Lecture at Buffalo General Hospital, Sept. 16, 1896.

shows a large scar on the arm, and her father states that the arm was very sore at the time of vaccination. There is no particular reason, however, to connect her present trouble with the vaccination. The principal complaint at present is of soreness in the right breast. The breast is much reddened, but this appearance is due to counter-irritants that have been used. On either side of the right axilla there is a chain of enlarged lymph-nodes, and there is a swelling in the breast that is tender on pressure. The child has not yet begun to menstruate, though her age suggests that with pelvic changes there may also be a development of glandular tissue in the breast. Sometimes, with approaching puberty, there will be tenderness and pain in the breast and, perhaps, a feeling of fulness, but not an actual tumor, such as is here present. The child has had two of the exanthems—measles and small-pox—each in quite a severe form.

We may exclude a physiological adenoma. There is no suspicion in my mind of malignancy, on account of the early age of the patient. One thinks, naturally, of tuberculosis, which, I believe, involves the mammary gland as often as it does any secreting gland, although tuberculosis of the breast is not often referred to in the text-books. There is also an involvement of the cervical and axillary lymph-nodes. In what tissue of the body the disease was primary, I do not know.

I do not advise operation at present, but I do advise the saturation of the system with those substances which have an antidotal power against the virus of tuberculosis. The physician in charge has been using an application containing ichthyol, of which I am quite fond. The ointment has also contained belladonna, and, as a result of this treatment, the breast is less tender. I often use an ointment of the following formula:

℞	Resorcini	5 parts
	Ichthyol	10 "
	Ung. Hydrargyri	35 "
	Lanolini	50 "

I should advise also the internal administration of guaiacol or of benzosol, in 25-centigram doses, t. i. d. I have seen great improvement follow the administration of this drug in many cases, especially in growing children. The hypodermatic use of tuberculin may also be of advantage. Plenty of fresh air, exercise, and freedom from school-life should be insisted upon. Cases of this nature have been apparently cured, and there is every reason to expect improvement from this line of treatment.

Here is another example of tubercular disease affecting the lymphatic system. This young man of twenty-one has noticed an enlargement of the neck for about a year. You can see the enormous mass, as large as my fist, on the right side of the jaw, while on the other side smaller nodes can be felt, from the size of a pea to that of a robin's egg. The family history is negative, the father dying of an accident and the mother being alive and in good health. In such a case of lymphatic enlargement, we should naturally look for possible sources of infection. In the throat are simply the evidences of mild chronic catarrhal pharyngitis, amygdalitis, etc. The teeth are in better condition than those of many patients whom we see in the hospital. There is no history of previous illness, running from the ears, nor eruption on the head. From any of these sources, infection of the lymphatics of the neck might follow. Especially in young children we may get a history of eczema of the scalp going on to ulceration and followed by involvement of the cervical lymphatics.

I have no hesitation in pronouncing this a case of tuberculosis of the lymphatics. The patient came to be cured, and is prepared to submit to operation. One might say off-hand that these masses are outside the large vessels, and that there is nothing that might not be removed with safety. On examining more carefully, however, I find a large mass in the right axilla and a smaller one in the left. There are undoubtedly tuberculous lymphatics beneath the pectoralis minor and the clavicle connecting those that are palpable above and below. While it would be possible by one, or better, by two long and severe operations to clear out these foci on the right side, there would still remain the lymphatics of the left side, and perhaps others of which we have no knowledge, but which would serve to propagate the tubercular disease. My advice, therefore, is to put the patient on about the same line of treatment as was indicated in the last case. The boy has already had his first injection of tuberculin, and as a result his temperature, which was normal two hours ago, has risen to 100.

Will it be possible to eliminate this disease entirely? I scarcely hope so, but it will undoubtedly be delayed, and the size of the masses will be diminished. In all cases of tuberculosis in which the disease is accessible and strictly limited I believe in operating, but even in local trouble, if the disease be so diffused that we cannot expect to eradicate it, operation is usually disappointing, a nidus for further infection being almost inevitably left behind.

The injections of tuberculin should not be made immediately into the affected area, because an additional amount of adhesion and infiltration will be produced. We must bear in mind the possibility of a demand for operative interference later. There is a little tenderness and redness over the largest mass, and if suppuration occurs the abscess must be opened.

MEDICAL PROGRESS.

Symptoms Produced by the X-ray.—PARKER reports, in the *New Orleans Med. and Surg. Jour.*, September, 1896, the case of a man who was shot in the lower jaw, the bullet passing through the left ramus and injuring the tongue. There was pain on the right side of the face, but the bullet was not found. Four days later an abscess on the right side ruptured into the mouth. He recovered promptly, and had no further symptoms until three weeks later, when for twenty minutes he was exposed to the X-ray. No trace of the bullet was obtained on the plate, and on alternate days he was again exposed to the influence of the rays for periods of time up to one hour and twenty minutes. There were five exposures in all, and no trace of the bullet was obtained. On each occa-

sion, on the day following the exposure, there were the local and general symptoms of inflammation, more marked after the long exposures, and subsiding only partially in a few hours. Two surgeons insisted that an abscess was forming, but after the X-ray tests were abandoned the swelling and pain rapidly disappeared, and did not recur.

LECERCLE (*Gaz. hebdom. de Med. et de Chir.*, September 24, 1896) has noticed in rabbits an increased elimination of phosphates by the kidneys, after the animals were exposed to the influence of the X-ray for three hours. This increase in phosphates continued for two days only.

A Triumph of Peristalsis.—RUNGE, in the *Bost. Med. and Surg. Jour.*, 1896, vol. cxxxv, p. 110, narrates an instance occurring in an insane asylum, which is deserving of a place among the remarkable feats of peristaltic action. A patient, suffering with melancholia, refused to eat, and was fed by means of a stomach-tube. As he soon acquired the habit of regurgitating the whole feeding, he became so emaciated that he never left his bed. One day the attendant came in to feed him, placed the tube on the window-sill, and stepped outside. On his return, half of the tube was missing, and the most careful search failed to reveal its whereabouts. One month later, a watery diarrhea which it set up was terminated by the extraction of the tube from the rectum. The piece swallowed measured 22½ inches.

A Simple Method of Diagnosing Diabetic Blood.—WILLIAMSON, in the *Brit. Med. Jour.*, vol. ii, 1896, p. 731, gives a simple method for making a diagnosis of diabetes by examination of a drop of blood. The amount of grape-sugar in normal blood is from .05 per cent. to .15 per cent., while in diabetes it is increased to from .27 per cent. to .57 per cent. This increase, slight though it is, has a distinctly increased power of decolorization of alkaline methyl-blue, as can be shown by the following test:

In a small, narrow, clean test-tube are placed 40 c.mm. of distilled water. A graduated capillary tube, such as is supplied with Gower's hemoglobinometer, is necessary for this purpose. The tip of the patient's finger is cleaned, dried and pricked, and from the exuding drop of blood 20 c.mm. are sucked up into the capillary tube and blown gently into the water at the bottom of the test-tube. Then 1 c.cm. of a watery solution of methyl-blue, 1–6000, is added, and finally 40 c.mm. of liquor potassæ, and the contents are mixed by shaking. A control-experiment is performed with non-diabetic blood.

The fluid in each tube is of a fairly deep blue. Both are placed in a glass containing water, and this is heated and allowed to boil for about four minutes. The fluid containing diabetic blood changes to a dirty, pale yellow, almost the color of normal urine. The other fluid becomes a bluish green or pale violet, but never loses its blueness. The tubes must be kept still while in the water-bath, as, if shaken, the methyl-blue is oxidized by the air, and may regain a blue tint. This is also the reason why a water-bath must be used for the boiling.

Taylor has applied this test thirty times in six cases of diabetes mellitus, and the decolorization was each time obtained. In 160 examinations made with the blood from healthy patients and from those affected with divers diseases, the decolorization did not once take place.

Trional vs. Sulfonal.—VON MERING has been conducting extensive experiments with trional upon man and the lower animals. His report, together with abstracts of the clinical results obtained with trional by sixteen other professors in as many different cities, is published in the *Therapeut. Monatshefte*, August, 1896. Von Mering himself administered it in almost one thousand instances. In some cases the patient took from 15 to 25 grains every second or third day for three or four months, without experiencing any discomfort. The testimony of the other sixteen professors was similar to his own. All stated that it was a more powerful hypnotic than sulfonal, and free from the unpleasant symptoms which sometimes follow the ingestion of sulfonal. Experience has proved that it is rarely necessary to give more than 15 grains of trional—at most 20 grains—in cases of uncomplicated sleeplessness. A feeling of drowsiness on the following day is proof that too much was given. In cases of sleeplessness due to pain, it works very well in combination with $\frac{1}{10}$ grain of morphin. If, for any reason, it is necessary to give a hypnotic daily for a long time, it is advisable to change the medicine from time to time, substituting occasionally for the trional, amyl hydrate, chloral hydrate, or chloralamid.

A Urethro-rectal Fistula.—BEACH of Pittsburg, Pa., in the *Med. and Surg. Reporter* of September 19, 1896, mentions an instance of that rare condition, a urethro-rectal fistula in the male. It occurred as the result of a perineal lithotomy when the patient was nine years of age. For forty-four years he went about in this condition, occasionally passing small amounts of urine per rectum and gas and feces per urethram. With a sound in the urethra and a rectal speculum, Beach easily demonstrated the presence of a fistulous tract between the two, large enough to admit the finger. A plastic operation was performed to close it, two flaps being taken from the mucous membrane of the rectum for that purpose. A silver catheter and rectal tube were left in position for ten days. The operation was apparently successful, but some months later gas appeared in the urethra and urine in the rectum, and examination showed that the fistula was only partially closed. A second operation will be undertaken to complete it.

Tracheotomy-tubes in the Air-passages—Treatment.—From the study of nineteen cases in which a tracheotomy-tube slipped into the lower air-passage, BILLOT (*An. des Mal de l'Or. du Lar. du Nez, Mar.*, '96) draws the conclusion that the presence of the tube is not immediately exceedingly irritating, so that the extraction need not take place at once, but still no more time should be lost than is necessary to obtain suitable instruments. If attempts to extract the tube with the means at hand fail, the patient should be encouraged to breathe deeply. The wound should be held open, or another large cannula may be introduced until preparations for the extraction of the old tube are completed.

On the Suprarenal Capsules in Addison's Disease.—RISPAL (*de Toulouse*) in the *Gazette hebdomadaire de Médecine et de Chirurgie*, August 27, 1896, speaks of the rarity of the absence of the suprarenal capsules in Addison's disease. He knows of but three cases: One reported by Kent Spender, the second by Fletcher, and the third reported by himself, which is as follows: The patient was a man, twenty-four years of age, suffering from Addison's disease, from which he died after ten months' illness. The autopsy showed that both suprarenal capsules were missing; also that there was no destruction whatever of the ganglions of the abdominal sympathetic nervous system.

Hard Chancre of the Eyelid.—ROHMCER, in the *Gazette hebdomadaire de Médecine et de Chirurgie*, August 6, 1896, presents a patient, thirty-five years of age, who, for three weeks, has been treated at the clinic of ophthalmology for a hard chancre of the eyelid. The trouble began by a small ulceration, situated on the inferior lacrimal point. This ulceration soon extended to the inner angle of the eyelids. Intravenous injections of cyanus of mercury (1-100) succeeded in curing the lesion in about a month. There was no enlargement of the preauriculary ganglion, and it was only after the fourth week that a slight enlargement of the submaxillary ganglion could be felt. About this time appeared also a very characteristic roseola.

On Fractures of the Femur Caused by Twisting.—In the *Berliner Klin. Wochenschrift*, August 31, 1896, TILLMANN reports five cases of fracture of the femur, caused by twisting the thigh. The violence seemed to him insufficient, and led him to an investigation of the subject, with most interesting results. In four cases the thigh was broken in the attempt to remove the boot, and in the remaining case the movement was the same, as the thigh was broken while the patient—a young man—was examining a wound in the sole of his foot. Three of the patients were men, aged nineteen, thirty-seven, and forty-eight; and two were women, twenty-seven and thirty-six years old. The man of forty-eight years died as a result of his injury. He had suffered for ten years from tabes dorsalis, while the woman of thirty-six years had shown the symptoms of this disease for two years. It is reasonable to suppose that the femur was weakened in these two patients by this disease, a possibility pointed out by Weir Mitchell in 1873. Charcot says that four per cent. of tabes-dorsalis patients present trophic disturbance of the bones. The other three patients were carefully examined, but they gave no symptoms either of tabes dorsalis or of any other disease which would account for a reduced strength of the femur. Messerer has shown that although a femur requires from 700 to 1000 pounds' pressure to cause it to break by bending, its shaft will give way under a twisting force of from eighty to 300 pounds, a force which is far too small to break off the head of the bone or to tear apart the ligaments at the knee or hip. Tillman attempted to verify these statements upon the cadaver, but he was able to break the femur by twisting in only seven instances. Two of these occurred in children of six and eight years of age, and the others were all in cadavers over sixty years of age. In the other subjects, owing to decomposition, the ligaments at hip and knee gave way. Dissatisfied, therefore, with the results, he looked up the three patients in whom fracture of the femur had no explanation, and at intervals since the accident of eight, five, and three and one-half years respectively, he found every one presenting well-marked symptoms of tabes dorsalis.

THERAPEUTIC NOTES.

For Pruritus.—SAVILL, in the *Brit. Med. Jour.*, September 19, 1896, mentions the good results which he has been able to obtain with calcium chlorid in the most obstinate cases of pruritus. At least 20 grains three times a day are required, and possibly twice that dose, but if given after meals, in a wine-glass of water, it does not disturb the stomach. To conceal its salt taste, it may be administered with a dram of the tincture of orange-peel and an ounce of chloroform-water. The remedy should be continued for two or three weeks after all symptoms have disappeared, and then diminished gradually, and not suddenly discontinued.

Glycero-phosphate in Sciatica.—Solutions prepared according to the following formulæ (*Gaz. heb. de Méd. et de Chir.*, September 13, 1896) are used by BILLARD with great success in sciatica:

℞	Glycero-phosphatis . . .	gram 5
	Aqua distil.	" 25

or

℞	Calcii glycero-phosphatis . .	gram 1.0
	Magnesii " . .	" 1.0
	Potassi " . .	" 1.0
	Sodii " . .	" 3.25
	Aqua distil.	" 25.0

The advantage of these concentrated solutions is in the fact that they keep indefinitely, while a weak solution will decompose. The solution should be put up in small tubes or vials, containing 2 c.cm each, so that fresh fluid may be used for each injection. From 1 to 2, or even 4 c.cm. are injected, under careful asepsis, in the seat of the pain. The effect is an almost immediate relief of the pain at the point of injection. In recent neuralgias, a single injection may suffice to bring about a cure. In more chronic cases, as in chronic sciatica, it is necessary to repeat the injection daily for a considerable time, and in some cases no lasting benefit is noticed. These injections are absolutely harmless, and usually produce no disturbance at the point of injection. The action of the drugs injected is not simply a local one, but they have also a beneficent influence upon the general nervous system.

Injection of Zinc Chlorid for Local Tuberculosis.—ZIEMATZKY (*Rev. de Chir.*, August, 1896) has employed the treatment recommended by Lannelongue in forty cases of tuberculosis of bone. He uses a ten-per-cent. solution of chlorid of zinc in distilled water, an ordinary syringe, and a rather long needle. As the object is to

make the injections subperiosteal, or at least under the ligaments, only a very small quantity is expelled in one place, the needle is withdrawn and another puncture is made. From twelve to twenty punctures are made at one treatment, from 10 to 15 grs. of the solution being employed. It is important that none of the fluid ooze out of the puncture, as the resulting necrosis is likely to form a sinus. This treatment is to be repeated every week.

Of seventeen cases in which the injections were begun in the incipient stage, twelve were completely cured by the injections. If an area of suppuration exists it must be drained and washed before injection, and advanced cases are unsuitable for injection. It goes without saying that important structures including bursæ and joints are to be avoided, and the needle should touch, but not penetrate, the bone itself. The action of the chlorid of zinc is, in Ziematzky's opinion, a germicidal one. Its evident result is first a leucocytosis and then a cicatricial formation.

Celluloid Plates for Flatfoot.—Instead of the usual steel supports for the arch made use of in flatfoot, KIRSCH (*Centralblatt f. Chir.*, No. 35, 1896) has used with great satisfaction a similar support made of sheet celluloid. The usual mold of the arch of the foot is taken, and a plaster model cast in this and shaved away, so as to make a slightly corrected representation of the patient's foot. Over this a sheet of celluloid of the proper size is bent and held in position by means of a towel. Model and celluloid are placed for one minute in boiling water, the towel twisted more tightly if necessary, and the celluloid allowed to cool. Its under surface is roughened so as to prevent slipping in the shoe.

For children, the plate of celluloid should be 1½ mm., for adults, 3–4 mm. (⅛ of an inch) in thickness.

The advantages of this support are its comfort and the ease and readiness with which it can be prepared.

Treatment of Diseases of the Respiratory Organs by Hot Baths.—LEMOINE in the *Gaz. hebdom. de Méd. et de Chir.*, August 27, 1896, speaks of the efficacy of hot baths in diseases of the respiratory organs. He proceeds in the following manner: If the case is very severe and the temperature high, he orders the baths every three hours, otherwise they are given whenever the temperature reaches 102.5° F. In all cases he gives regularly two baths during the forenoon and one during the evening.

The temperature of the bath varies from 95 to 98° F., the patient remains in from five to ten minutes. During the entire duration of the bath, the patient has a cold compress applied to the head, and on being taken out of the bath is rolled in a blanket and made to drink either coffee or grog.

The baths should be ordered in cases of simple bronchitis, capillary bronchitis, broncho-pneumonia, and pneumonia, no matter in what stage of the disease the patient is found. If the case is very grave it is better to begin with a mustard-bath of shorter duration, long enough to redden well the skin. This mustard-bath (if ordered) can only be repeated once during the twenty-four hours, the rest of the time the ordinary hot baths are given. The effects of the bath are very rapid, and it is seldom that they have to be given after the third day. After the first bath, generally, the temperature falls a little, the patient breathes better and is more calm, and later the lungs begin to clear. The baths seem to have a beneficial effect on the nervous system, on the functions of the skin, on the kidneys, and temperature.

Use of Picric Acid in Case of Burns.—PAPAZOLONGO in the *Journal de Médecine*, August 30, 1896, advises the following formula in the case of burns:

℞	Picric acid	5 grams.
	Alcohol (ninety per cent.) . .	50 "
	Distilled water	1000 "

This solution is employed in the following manner: If the burn is very extensive, put the patient, without being undressed, in a picric-acid bath, by so doing there will be less pain when the clothes are removed.

If the burn is limited, begin by washing the burned surface with the above solution; open the blisters to let out whatever serosity there may be, leaving the epidermis in place. After this proceed with the dressing; first put on pieces of sterilized gauze which have been soaked in the picric-acid solution, then cover this with cotton, which is kept in place by a bandage. It is better not to cover the dressing with oil-silk, etc., for this keeps the wound moist, and prevents cicatrization. This dressing is left in place three to four days, when it is replaced by a similar one which is left five or six days. In redressing the wound, if the bandage sticks, moisten it with the picric-acid solution. Burns of the second or third degree heal with two or three dressings, the cicatrix obtained is smooth and supple.

Constant Irrigation in Septic Puerperal Cases.—In the *Journal de Médecine Militaire*, p. 360, 1896, GLIAKOFF describes a method of treatment of puerperal cases by constant irrigation with solutions of carbolic acid and permanganate of potash. A one-per-cent. solution of carbolic acid was first employed, and followed by a weak solution (rose-colored) of permanganate of potash. The irrigating fluid was kept at 104° F., and allowed to flow for six hours. The results were excellent. Only one patient of the twenty-eight thus treated died, and she was not treated until three weeks after labor, and had pyemia. The analgesic effect of the irrigation was marked.

Treatment of Temporo-maxillary Ankylosis.—Two years ago HELFERICH (*Arch. prov. de Chir.*, vol. v, p. 125) recommended the resection of the head of the bone in temporo-maxillary ankylosis, and the interposition by a bit of muscle to prevent deformation of osseous tissue. ROCHET has followed this plan with success in three cases, though instead of resecting the head of the bone—a tedious operation and likely to be followed by facial paralysis—he removes from the neck, just below the head, a trapezoidal piece of bone, and introduces two muscular slips from the masseter, one in front and one behind, stitching them to the internal pterygoid muscle to keep the ends of bone apart.

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SATURDAY, NOVEMBER 7, 1896.

PUBLIC BATHS AND PUBLIC-COMFORT STATIONS FOR NEW YORK CITY.

COMPLAINT has frequently been made regarding the supineness and bad management of the officials of New York regarding baths and stations for public comfort. Lately, the *Independent* has returned to the charge and indicates that the work must all be done over again, beginning with new legislation at Albany.

A law was passed March 25, 1896, authorizing the appropriation of $200,000 for public baths in this city. The appropriation is excellent; but there are certain grave defects in the bill, because it does not provide for the purchase of any property for the location of public baths; they are to be erected in the public parks. The error of this provision was evidenced by the strong local feeling in opposition to a bath in Tompkins square. Again, the baths should not be free, a conclusion which is confirmed by the practice of English and Continental cities. While the city should build them, those using them should pay for that privilege. The most important defect in the bill is the way in which responsibility is divided.

According to the law, the Department of Public Works is to build the baths, and in case any of them should be located in parks, the Department of Public Parks is to exercise control over them. The operation of a public bath is solely a matter of public health and sanitation, and there is again no reason for departing from the previous practice, which placed them under the control and supervision of sanitary authorities, which in New York would be the Health Department. It is rather a common practice with the English municipalities to make a bath-establishment a common place of meeting for the members of a parish for recreation and improvement.

The proper provision of public-comfort stations is axiomatic, and the lack of these conveniences is a disgrace to American cities and towns, and New York in particular. On July 5, 1895, an Advisory Committee was appointed by Mayor Strong to take this subject under advisement, and to report at once some means for carrying out recommendations of the Sub-Committee, appointed by the Committee of Seventy on Public Baths and Lavatories. It is now more than a year since that appointment, and nothing has been done. When will the Mayor's Committee emerge from their cloistered seclusion with a few practical suggestions? It may be, however, that advice has already been proffered by them, and not accepted by the Mayor.

THE PREVENTION OF CHOLERA IN INDIA AND THE ERECTION OF A LOCAL PASTEUR INSTITUTE.

MR. ERNEST HART, the distinguished editor of the *British Medical Journal*, in a recent letter has given a most interesting and instructive account of the evolution of vaccination against cholera. Incidentally he also presented a brief but fascinating sketch of the life of Haffkine to whom most of the credit is due for all that is known in this promising branch of preventive medicine. That these discoveries are not accidental, but rather the results of well-planned research on the part of minds especially adapted for such work by both nature and education, is manifest in the fact that Pasteur, when requested by the king of Siam to furnish an antidote for cholera, turned at once confidently to this young man to undertake

the task. At this time (1891) Haffkine was professor of physiology at Geneva.

Any investigation along this line seemed hopelessly blocked in the very beginning by a natural immunity of all lower animals to the infection of human cholera. But it was not long before an acquired susceptibility was induced in rabbits. The next difficulty encountered was that the intensified or "exalted" virus produced such active local inflammation that sloughing at the site of injections was the invariable result. But this, too, was finally overcome by the discovery that in using preliminary inoculations of the attenuated virus the system could be so prepared as to obviate entirely the local irritation. Early in 1893 the method was tried by Haffkine upon himself and some fifty courageous volunteers with the positive confirmation of its safety. It is a notable fact that up to the present time 70,000 vaccinations have been made upon 42,000 individuals without an accident of any kind. After demonstrations of his method in Paris, and in London before the Royal College of Physicians and Surgeons, Haffkine was allowed to proceed to Bengal where his mission received active interest and support from the Indian authorities. The magnitude of his undertaking, as well as the urgent need for succor from some source, requires no further emphasis when we consider the many thousands of human lives surrendered to this insatiable enemy of mankind in tropical Asia. An interesting feature that contributed greatly to the success of the experiment is the fact that the natives, instead of opposing this procedure, looked upon it as a revival of a traditional practice among their early religious teachers, and accepted it with alacrity.

In April, 1893, Haffkine began work in those regions of India where the disease is endemic, and for twenty-nine months inoculated all classes and conditions of men to the number of 11,000.

The result of these investigations justifies the statement that the vaccinated are twenty times safer from the disease than the unvaccinated, and eighteen times securer from death. The effects are of such a manifestly promising character that steps are being rapidly taken to establish a local Pasteur Institute. *The Indian Medical Record* states that the government of India has offered 5000 rupees annually toward its support, and 10,000 toward its erection, with the following provisions: (*a*) That competent vaccinators are provided to deal with outbreaks of cholera, and to inoculate coolies recruited for the tea gardens; (*b*) to inoculate hydrophobia-patients; (*c*) to give instruction in practical bacteriology. The national tea- and mining associations are expected to contribute liberally to the erection and support of the institution.

THE TREATMENT OF HEMORRHOIDS.

Where a large number of different surgical procedures are recommended to cure a certain condition, it is apt to mean unsatisfactory results. This is not true, however, in regard to the cure of hemorrhoids. The surgical treatment of this condition dates back to the earlier centuries, and some of the newer methods differ but slightly from those recommended fifty years ago. The operations which the last decade has brought forth, however, notably that of Whitehead and its many modifications, have taken a prominent position in the treatment of hemorrhoids.

During the past twenty-five years there have been much discussion and difference of opinion concerning both the major and minor operations for the cure of this condition. Whether or not the injection into the pile of diluted carbolic-acid, alcohol, or other solutions, is a safe and reliable plan of treatment, is a question which as yet has not been satisfactorily answered. The popularity and undoubted success of this method of treatment among quacks certainly indicates that it possesses some virtue. While occasionally disagreeable results follow such injections, and while frequently cure does not result, yet it must be granted that in many cases relief is obtained. It is suitable for a limited number of cases only.

Of the major procedures the three methods which are generally adopted are the ligature, the clamp and cautery, and the Whitehead operation. Each one of these gives excellent results, and it is difficult to decide which one will give the best results in the greatest number of patients. It is true that many a surgeon will favor a certain method. He adopts it in a large number of cases; his results are good; he learns from constant

practice to perform it very skilfully; he becomes prejudiced in its favor, and finally, claiming superiority for his particular procedure, adopts it for all his patients, a certain number of which could preferably be treated by one of the other methods were its details as perfectly carried out by him as are those of his "pet" operation. The operative treatment of hemorrhoids affords one of the best illustrations of this rather warped state of mind. One authority claims that incomparably better results are obtained after the ligature-operation than after the employment of the clamp and cautery. Another authority of equal distinction claims that the clamp and cautery-method is superior to all others, and that he makes use of this method exclusively. The advocates of Whitehead's method have found it thoroughly satisfactory, though they advance their claims in a more modest manner. Probably this operation has received a greater share of abuse and severer condemnation than either of the others, and certainly more than it deserves. To the unprejudiced observer the plan of Mr. Whitehead is for certain cases the best of all. As a method for general use in all cases it is the worst.

It is true that a greater amount of technical skill is needed, that more blood is lost, and more time consumed than is the case with either of the other methods. With a practised surgeon and skilled assistants, however, these objections should not prevent the choice of this method in suitable cases. The ligature- and cautery-operations are simpler, and are certainly better adapted for general use. One method seems to be as commonly used as the other. The same advantages are claimed for each, and it must be granted that the results of either plan are in the majority of cases satisfactory.

The recent operations which have been proposed are generally modifications of the Whitehead-method. Variations of the old plan of excision are also from time to time introduced. The general tendency of these modifications is to remove the hemorrhoidal bunches, and at the same time not to cut away the mucous membrane from the entire circumference of the rectum, on the theory that the membrane lining the canal-outlet has functions to perform. Practically, these functions have never been satisfactorily demonstrated, but several interesting studies of this subject have been made, as for example the careful examinations and dissections of the anal mucous membrane by B. B. Stroud of Cornell University, who has found that in the mammalia there is a narrow zone of transitional epithelium between the skin and rectal mucosa, called the pecten, in which he claims are the peripheral ends of nerves concerned with a special rectal sense, and that also in some human individuals there are developed papillæ which he believes to be important additions to the "rectal-sense" apparatus. Other physiologists and surgeons have made the same claim and attribute the incontinence, which at times follows Whitehead's operation, to the removal of these terminal sensory nerves, though it is quite as probable that it is rather due to injury of the sphincter-muscle during the operation. In some of these modifications strips of the mucous membrane are left undisturbed, the piles with the overlying mucosa being excised between them. In others, as in the procedure advocated by Baumgartner at the last German Surgical Congress, the hemorrhoids are excised through a vertical incision in the mucous membrane and skin, the edges of which are afterward united. This, however, is practically the same method as was introduced by Quénu and others years ago. Other methods are of less importance.

In one sense it is rather unfortunate that there should be such diversity of opinion on this subject. The student and young surgeon are apt to be bewildered by such contradictory statements. They can feel assured, however, that either one of the three methods is safe and reliable, and is supported by authority of equally skilful rectal specialists. Experience must teach him the rest.

A. J. McCosh, M.D.

ECHOES AND NEWS.

Electric Heaters.—The German Hygienic Association offers a prize of $1200 for an essay containing original research upon the efficiency of electric heaters for domestic purposes.

A Classification of Skin-diseases.—John Hunter divided skin-diseases into three classes: Those which are cured by

sulfur; those which are cured by mercury; and those which the devil himself could not cure.

Two Chinese Lepers Escape.—Long Dong and Sam Loo, Chinese lepers, who had been confined in the leprosy-ward in the hospital on North Brother Island, New York, for nearly one year, escaped on the night of October 28th.

Serum-therapy in Pulmonary Phthisis.—Régnier in an "Essay on Serum-therapy in Pulmonary Phthisis," by Maragliano's method, announces the results in 325 cases as follows: Stationary, 50; improving, 140; good results, 45; no results, 25; deaths, 14.

The Parasite of Whooping-cough.—Kurloff believes that the specific microörganism of whooping-cough is a protozoan. He has found uniformly in the fresh sputa of patients ameboid organisms with spherical spores characterized by concentric lamination.

Dr. Bolton's Resignation.—Dr. B. Meade Bolton has resigned the position of chief of the Municipal Bacteriological Department, Board of Health, Philadelphia, in order to take a professorship of bacteriology and pathology in the University of Missouri at Columbia, Mo.

A Roll of Honor.—A hall has been established in the Val de Grace Hospital in Paris where the names of French medical men who died in the performance of their duty are inscribed on marble tablets. A list of 143 practitioners has been placed on its walls, all of whom perished in the yellow-fever epidemic in San Domingo, 1801–1803. *Indian Medical Record.*

The Turin Institute.—During the first six months of 1896 345 persons bitten by dogs that were mad, or suspected of being so, presented themselves for preventive treatment at the Turin Institute. There were no deaths among the 229 that followed the Pasteur treatment. Since September, 1896, the date of the opening of the institute, 2895 persons have been treated by injections of the virus, and the death-rate has been 0.76 per cent.

The Plague in Bombay.—According to the Bombay newspapers the generally accepted theory of the outbreak of bubonic plague in the presidency is that the disease was imported from China, it having first appeared among the Lohanas, who are mostly employed on steamers trading with China. The plague caused great mortality among the rats before the inhabitants were aware of its presence, and this is probably confirmatory of the theory that these animals are the carriers of the infection.

Obituary.—James B. Murdock, M.D., late dean of the Western Pennsylvania Medical College, died October 29th at Bellefield, Pa. He was born at Glasgow, Scotland, in 1830. He was graduated from the College of Physicians and Surgeons, New York City, 1854. For a time Dr. Murdock practised medicine in Oswego, N. Y. He located in Pittsburg in 1877.—Professor H. Newell Martin died at Burley, England, October 27th. Professor Martin took the chair of biology at Johns Hopkins University in 1876, and served until 1893, when he was compelled to retire because of failing health. He studied with Huxley, and was by him recommended to the faculty of the university.—Dr. C. E. Brown-Séquard, the only son of the late Professor Brown-Séquard of Paris, France, died recently at the age of thirty years in Atlanta, Ga., where he was engaged in scientific work.

Sulfonal in the Night-sweats of Phthisis.—Combemale and Descheemacher, in the *Bull. med. du Nord*, record experiments with sulfonal in the night-sweats of phthisis. In the first and second stages of consumption, in some instances, sulfonal causes entire cessation of the sweating, in others the sweating is limited, especially to the head, while in others the sweating disappeared, but a slight moisture of the skin was noted. While complete stoppage of night-sweats is not always obtained, they are at least greatly modified.

The Use of Kidneys in Renal Diseases.—The Berlin correspondent of *The Medical Press* says: "Following the prevailing fashion of the day an ingenious Russian physician has for some time administered kidney in renal disease. The cases consisted of acute and chronic parenchymatous nephritis, granular and amyloid kidney. Increase of urinary secretion, diminution of albumin, and cessation of uremic symptoms were observed. After taking at least twenty kidneys the therapeutic effect was permanent, and the patients could be looked upon as cured. The kidneys were given fresh and in a raw state."

The Formation of Antitoxin by Electrolysis.—Marmier in *Annales de l'Institut Pasteur* describes a series of experiments to determine whether antitoxin can be obtained by electrolysis. He finds that with venin and with diphtheritic toxins he is able to obtain no attenuating effect with alternating currents of high frequency, but that with continuous currents there is a distinct attenuation of the virus to be noted. Continuous or alternating currents of low frequency destroy bacterial toxins, simply because they have the power of producing hypochlorites and chlorin from the chlorid of sodium dissolved in the solution of toxins, this substance in a nascent condition exerting a considerable effect upon the toxins.

Origin of Fat in the Body.—Kaufmann, in the *Archives de Physiologie*, gives the results of his experiments upon the origin of fat. His conclusions are as follows: The proteids, in common with the customary compounds of the food, contribute, though not exclusively, to the formation of fat. When, during digestion, there is absorption of a large quantity of proteids, they disintegrate and form fat. Of this, one part oxidizes and, passing through the glucose stage, supplies the physiological energy requisite for the organism; a second undergoes incomplete oxidation and is transformed into carbohydrate, which is stored up in reserve as glycogen; the third is deposited as fat. The proportion of fat deposited during digestion varies with the abundance of the repast, and the amount of glycogen in the organism. The whole of the non-oxidized fat may be converted into glycogen in an animal poor in that substance. Calorimetric investigations demonstrate that

the anaërobic decomposition of albumin, if it occurs, is not attended with any liberation of heat.

N. Y. State Association of Railway Surgeons.—The following is the program of the sixth annual meeting to be held in the Academy of Medicine, New York, Tuesday, November 17, 1896. Morning session, 9.30 sharp: (1) "Modern Methods in the Treatment of Fractures," Dr. R. H. Cowan, Radford, Va.; (2) "How can we best Secure Immobilization in Compound Fractures at or near Articular Processes?" Dr. Z. J. Lusk, Warsaw; (3) "Immobilization and the Treatment of Fractures at the Elbow-joint," Dr. J. H. Glass, Utica; (4) an address, "Injuries to the Head," Dr. Roswell Park, Buffalo; (5) "Relief and Hospital Department," Dr. Frank H. Baldwell, Waycross, Ga. Afternoon, 1.30 sharp, executive session: (6) President's address, Dr. C. S. Parkhill, Hornellsville; (7) "Traumatic Neurasthenia," Dr. J. E. Walker, Hornellsville; (8) "Cases of Apoplexy following Some Time After Accidents," Dr. William Browning, Brooklyn; (9) "Cranial Injuries," Dr. W. A. Ward, Conneaut, Ohio; (10) "Distinctive Features of Railway Surgery," Dr. R. S. Harnden, Waverly; (11) "Granulation-surfaces," Dr. John Van Duyn, Syracuse; (12) "Chloroform-anesthesia," Dr. Webb J. Kelly, Galion, Ohio; (13) "Injuries to the Eyeball," Dr. Samuel Mitchell, Hornellsville; (14) "Acute Infective Thecitis," Dr. A. Llewellyn Hall, Fair Haven, N. Y.; (15) "Compound Fracture of the Skull, with Injury to the Brain-substance, with report of cases," Dr. J. G. Kelly, Hornellsville. In the evening there will be a reception and banquet at the St. Cloud Hotel, in honor of the invited guests of the Society.

CORRESPONDENCE.

THE USE OF SURNAMES ONLY IN CITING AUTHORITIES IN MEDICAL LITERATURE.

To the Editor of THE MEDICAL NEWS:

DEAR SIR: Having been engaged lately in literary work involving considerable consultation of papers and verifying of references, I have realized, as any one must under the circumstances, the extra labor necessitated by a practise, which has always been more or less general with authors, of mentioning only the surnames of writers and investigators referred to. Any one who has had experience cannot fail to have been struck with the large number of persons of the same surname who are contributors to medical literature, so that a reference to Dr. Sydenham's or Dr. Jones' views, or Dr. Ranklin's papers, gives a very imperfect idea of the individuality of the author. Take, for example, the name Hoffman. The student will find, in the Surgeon-General's catalogue, this surname more than one hundred times, and, of these many Hoffmans, quite a number are authors of voluminous and important papers; so that to be told that Hoffman believes thus and so is of little assistance to the reader who desires to look up his views and papers. Again, to take a name to which modern medical literature often refers—Laveran. At least two Laverans, both army surgeons, have written papers of importance. The Laveran[1] whose name is so identified with the malaria plasmodium is A. Laveran, while Louis Laveran is a very different person; yet writers only quote Laveran. It is needless to multiply instances; they will occur to any one. My object in asking publicity for this letter is to beg writers to adopt the practice of giving the full name of the authority quoted. This, of course, involves a little trouble at first to hunt up the Christian name, but, as years roll on and we all are thus explicit in indicating authorities quoted, it will become easier and easier, while the amount of labor saved to those looking up references will be immeasurable. Especially important is it that the editors of the various hand-books and annuals, which are now filling such a useful niche in medical literature, should adopt the practise of using the full name, for it is from suggestions in such books that writers often want to look up references.

Respectfully yours,

JAMES TYSON.

PHILADELPHIA, PA.,
October 30, 1896.

SPECIAL ARTICLE.

PROGRESS AT CRAIG COLONY DURING THE EIGHT MONTHS SINCE THE OPENING.[2]

THIS has been the crucial year in the evolution of Craig Colony. All of the buildings, which were in the Shaker settlement at the time of its purchase for dependent epileptics by the State, have been thoroughly remodeled and put into complete order for the reception of patients. A perfect system of water-supply, sewerage, plumbing, heating, and electric lighting has been installed, and on February 1, 1896, the Colony was informally opened for patients. One hundred and forty-nine patients have been received thus far, and as soon as the hospital building, now in course of construction, is completed, and the west group of buildings heated, the accommodations of the plant, as it now stands, will be ready for a population of over two hundred epileptics.

In spite of the shortness of the time now elapsed since the opening of the Colony, two very important facts have become evident: (1) that remarkable improvement has taken place in the condition of the patients admitted, and (2) that the economic success of the scheme is assured.

EFFECT OF COLONY-LIFE ON THE PATIENTS.

Nearly every case has gained in weight and in general health. In all cases the epileptic seizures have diminished in frequency to a marked degree, and in some instances this has been even extraordinary. The expression of the inmates has altered, so that instead of the dull, hopeless look of the almshouse epileptic, one sees on all sides happy faces in which intelligence and hope are being reawakened.

The school has been successfully started for fifteen or

[1] Unfortunately, even the Surgeon-General's catalogue has not the full Christian name.

[2] Official report of the Medical Superintendent.

twenty of both sexes. Much of the printing of the colony is now done by two or three epileptics in the colony's own printing-office. Carpentry, sewing, painting, etc., are being carried on by the patients. They have their own epileptic blacksmith. Naturally the great work of the inmates of both sexes is in the field and garden. Eighty-three per cent. of the males and seventy-six per cent. of the females have given us eight hours' daily labor. This labor has had a great effect upon the income of the colony, demonstrating the

ECONOMIC VALUE OF THE SCHEME.

From the report of the superintendent and steward for the year ending September 30, 1896, we learn that the products of the farm and garden for the year 1896 amounted to $14,230.20. The cost of maintainance of patients from the date of opening, February 1, 1896, to October 1, 1896, a period of eight months, was $28,-258.24. The colony has therefore actually produced already one-half of the cost of maintenance.

Appropriations are asked for this year to increase the productivity of the agricultural department especially, because upon this the economic success of the scheme depends so largely.

At the same time there is most urgent need of accommodations for the hundreds of patients seeking admission. There are nearly a thousand patients still a public charge in the almshouses, insane asylums, and various charitable institutions, who nced to be provided for at Craig Colony. The managers will ask the Legislature to provide this coming year dormitory accommodations for at least three hundred more patients.

SOCIETY PROCEEDINGS.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting October 6, 1896.

B. ONUF, M.D., read a paper entitled,

A CONTRIBUTION TO THE STUDY OF MOTOR APHASIA,

in which the following case of cortical motor aphasia was reported:

Mrs. S. D——, twenty-three years of age, had an attack of acute articular rheumatism three years ago, during which she probably acquired an endocarditis with valvular lesions of the heart. On June 7th, after a miscarriage, she had an attack of embolism, followed by hemiplegia of the right side, and involving the right arm, and particularly the hand and fingers. She said that the understanding of spoken language was unimpaired, but this statement should be taken with some allowance. He had first seen her on April 3d. At that time there was slight disturbance of motor speech—*i.e.*, slight difficulty in finding the words, and an occasional misuse of words, or an improper construction of sentences. She had difficulty in giving the name of common objects presented to her. Aside from these disturbances, there was marked defect of the faculty of reading and writing, individual letters of the alphabet being frequently mistaken. She found it, as a rule, easier to read the word *in toto*, than to spell it. The word "one," for example, was pronounced correctly, but spelt "won." In the writing, which was done with the left hand, the patient used printed characters, both in copying and writing from dictation. The auditory impressions received from loud reading undoubtedly helped her understanding, and enabled her to read words which she could not do otherwise. There were absolutely no other visual disturbances—no hemianopsis, and no narrowing of the visual fields. Apparently there were no gross lesions of memory.

He also reported the case of a man whose speech had been suddenly affected, so that he spoke very thickly, and could hardly be understood. There was no real aphasia, for he knew what he was going to say, and always succeeded in saying it, but the words were very much blurred. Five days later he died with symptoms of congestion of the lungs. On *post-mortem* examination, a blood-clot was found at the level of the lower part of the ascending frontal and ascending parietal convolutions of the left hemisphere. Almost all the cortical substance of these convolutions had been destroyed, but the third frontal convolution had been left intact.

It was easy to understand the occurrence of motor aphasia with alexia and agraphia, if we supposed that Broca's center was involved. This view found further support in the fact that many cases of motor aphasia with alexia had been reported, in which the aphasia had been almost entirely recovered from, while the alexia had remained. He could not answer, however, the question, why in this and many other cases there was an earlier recovery from aphasia than from alexia. The observations in this case would go to show that most of the words were read as a whole, and not by spelling. It was certainly not possible in the English language, because of the variety of ways in which certain groups of letters are pronounced in different groups. In learning Russian, he had himself begun to read before he had been entirely familiar with the letters of the alphabet. Although to a certain degree he had read the language "spellingwise," he still recognized many words by familiar combination of letters, and by the sense. He believed that the reason his patient used printed characters solely was, that there was a loss of motor-graphic memories. The visual memories for printed signs are usually much better established than those for script, for the reason that reading is chiefly done from printed characters. That muscular sensations play a very important part is shown by the fact that we can write with the eyes shut. If we are warranted in speaking of a motor speech-center, we must be justified in speaking of a physiological apparatus in which muscular graphic memories are stored. Loss of these memories does not imply absolute impossibility to write, as visual memories may supply the deficiency. It is not supposed that the lesion may just destroy the motor-graphic memories and leave intact the other motor faculties connected with the hand- and finger-muscles. A patient with a lesion of Broca's center can understand what is said to him, but he has lost the power of inwardly repeating what has been said. The motor speech-center forms such an important factor in the evolution of the higher mental

processes, that its lesion cannot remain without damaging influence on the mental activity.

DR. JOSEPH COLLINS could not agree with Dr. Onuf that a person having pure motor aphasia, was completely unable to read. He had one patient who was completely aphasic, yet he could write prolifically, and was able to read understandingly both his own writings and those of others. He certainly both read and understood these writings. Hence, the speaker said he could not believe that with pure and complete motor aphasia there is necessarily alexia. He did not think there was any objection to subdividing the motor speech-center into an articulo-motor center, and placing adjacent to it the centers for phonation, labial movements, and buccal movements.

DR. B. SACHS had recently observed a case in which aphasia was the sole symptom of a cortical tumor. The manner in which it progressed would seem to justify fully the subdivision of the motor speech-center, and also to show that speech is not the function of any one center, or any series of centers, but that it is really the result of a very close union of these centers by distinct association-tracts. If this were not so, a relatively small lesion could not explain the variety of symptoms observed in the case which he reported. The patient was a lady who had been carefully observed by her brother, who was a physician. The first thing noticed was an apparent slight apathy, but this was really due to a difficulty in speech. When first seen by Dr. Sachs, about three months after this, it was found that she had lost the faculty of using nouns, so that she could not give the names of those persons best known to her. After a time the difficulty of speech became more distinct; there was great difficulty in finding words. Toward the end only was there a distinct deficiency in the understanding of language. From the very first her brother had noticed a distinct difficulty in reading, and a still greater difficulty in writing. He had never seen a patient able to speak so much and yet unable to name or even copy single letters. She could, however, write a *whole* name fairly well. Such a case seemed to show the necessity for a further subdivision of the motor-area. The paper of the evening was of value as a corroboration of Bianchi's views. It showed that we were gradually turning to larger divisions rather than to the small localization-areas, which we employed as a result of the teachings of Ferrier.

DR. ONUF, in closing the discussion, said that he distinguished two forms of aphasia—cortical and subcortical motor aphasia. The latter was also called pure motor aphasia. In cortical motor aphasia, it was assumed that the cortex, where psycho-motor images of speech are deposited, is affected. Subcortical aphasia is one in which there is an impossibility of loud speech, but internal language remains intact; hence, such persons can read and write perfectly. He believed the cases referred to by Dr. Collins were examples of subcortical motor aphasia.

G. W. JACOBY, M.D., read a paper on

THE COMMITMENT OF PATIENTS AND THE NEW INSANITY LAW.

Under the name of the insanity law there went into effect a new law in July of this year. In his opinion, the framers of the law had totally failed to unite the postulates of jurisprudence with those of medicine—indeed it would seem that they had intentionally ignored, as far as possible, the medical side of the subject. The medical certificate no longer serves for the temporary detention of the patient for five days. The responsibility for the commitment has been removed from the shoulders of the physicians to those of the judge, and a matter which is essentially medical has been transformed into one chiefly legal. This law also provides that at least one day before the physician presents his application to the judge, the patient is to be informed of the proceedings. This personal service can be omitted under certain circumstances, according to the discretion of the judge. After all the necessary legal preliminaries have been taken, the superintendent of the institution to which the patient is committed, may refuse to accept the patient on the ground that he does not consider the person insane, or that the papers are not made out properly. There is also a provision for an appeal from the decision of the judge and a trial by jury. The old law was much better, particularly on account of its provisions for temporary detention. The provision which takes away every method of procedure except appeal, when the application is refused, is a particularly objectionable feature. Personally, he would not be satisfied with an insanity law which would not allow of the temporary commitment of the person on the strength of medical certificates by two qualified physicians, one of whom should have special psychiatric qualifications.

DR. CARLOS F. MACDONALD said that he wished at the outset to disclaim any responsibility for the framing of the new law. It had its origin with a member of the Statutory Committee of Revision. He was the only physician in this State who had opposed the bill before the legislature. During the past seven years, as commisioner in lunacy, he had examined thousands of cases of alleged illegal commitment, and he had yet to learn of a single case of a sane person being committed through corrupt collusion and through intent, although he had occasionally known of instances of mistaken diagnosis, such as might occur in connection with any disease. He thought that, as a rule, judges would waive the notice of personal service upon the patient or friend, and it seemed to him a distinct advantage to make the commitment a judicial order, rather than a judicial approval, as in this way it relieved the medical profession of much responsibility and the danger of suits for damages. In his judgment, the weakest point was the absence of any provision for temporary detention. A determined effort should be made this winter by the medical profession to amend the law in that respect. Curiously enough, the laity consider themselves fully as qualified as physicians to diagnosticate insanity, and this new law is an outgrowth of that feeling.

DR. C. L. DANA said that his views were entirely in harmony with those of the reader of the paper, and the Society should make it clear that it appreciated the absurdities and many faults of the new law. It had caused an infinite amount of trouble to the city physicians, and the ordinary process of commitment had, in consequence,

become tedious and expensive—so much so that physicians had found it advisable to commit insane persons, as far as possible, to institutions outside of this State.

DR. HAMMOND then offered the following resolution, which was unanimously adopted:

RESOLVED, That the President appoint a committee of five to report to the Society such measures as it may deem expedient for securing the amendment of the present lunacy law, governing the commitment of the insane.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, September 9, 1896.

G. BETTON MASSEY, M.D., read a paper entitled

ELECTRICITY IN GYNECOLOGY AT THE HOWARD HOSPITAL.

The cases submitted to treatment were strictly gynecologic, the majority presenting evidences of chronic inflammation, exudation or hypertrophy of the pelvic organs, neoplasms, pathologic displacements or disturbed innervation, including certain neuroses with pelvic manifestations, and post-operative painful affections. Thirty cases of fibroid tumors of the uterus were treated. In one case a submucous tumor was expelled from the uterus by contractions induced by the electric current. Three tumors disappeared almost entirely by absorption. In eight cases there were symptomatic cure and great reduction in size. In eight other cases there were symptomatic cure and slight reduction in size. In two cases symptomatic cure resulted, without reduction in size. Four cases were yet under treatment, with a favorable outlook. Three cases failed to continue the treatment for a sufficiently long period. In only one case was there no improvement. No bad results attended the treatment, and practically no discomfort attended or followed the applications. Suppuration in the neighborhood of the tumor and cystic degeneration of the tumor contraindicate the local employment of electricity. Cystic degeneration is recognizable by palpation and suppuration, by the failure of the applications of the faradic current to relieve temporarily the pain and the aggravation of the pain by intra-uterine applications of galvanism. Of sixteen cases of chronic metritis, thirteen were cured, two improved, and one not improved. Of fourteen cases of perimetric inflammation, six were cured, six improved, and two not improved. Of four cases of chronic ovaritis, two were cured, and two improved. Of eight cases of post-operative pain and neuroses, one was entirely relieved, three improved, and four remained unimproved. One case of incipient, but undoubted, carcinoma of the breast was cured and has remained well. Two cases of carcinoma of the cervix were temporarily improved, while one remained unimproved. Other affections treated were: Subinvolution, 7 cases, all cured; menorrhalgia, 5 cases—4 cured, 1 improved; endometritis, 4 cases—3 cured, 1 improved; retroflexion, 2 cases—both improved; retroversion, 2 cases—1 cured, 1 improved; pyosalpinx, 2 cases—1 cured, 1 became worse; hydrosalpinx, 1 case—cured; ectopic gestation, 1 case—cured; prolapse, 1 case—improved; urethral caruncle, 1 case—cured; pruritus, 1 case—cured.

In reply to questions propounded in the discussion, Dr. Massey added that tuberculosis of the genitalia is a contraindication to the total employment of electricity; and that the cure in the case of ectopic pregnancy consisted in arresting the life of the fetus, followed by shrinking of the tumor, after rupture into the broad ligament.

JOHN LINDSAY, M.D., reported

A CASE OF PROSTATIC ABSCESS,

occurring without obvious cause in a married man, twenty-nine years old, a waiter. The patient was seized with chilliness and a feeling of soreness in the joints and muscles, together with general debility. The temperature was 101° F., and the tongue was coated. The case was treated as one of influenza, but improvement did not take place. The patient remarking casually that he had piles, rectal examination was made and disclosed general enlargement of the prostrate gland, together with local heat. The patient denied ever having suffered from urethritis, and there was no history of traumatism of any kind; and the only assignable cause was walking long distances. Hip-baths, quinin, magnesium citrate, and rest in bed were prescribed. A rigor, together with general restlessness, difficulty, and pain in micturition, was followed by the discharge of about an ounce and a half of pus from the urethra, with relief from the previous symptoms. The patient was directed to take fifteen grains of boric acid thrice daily, but he failed to report again and the further progress of the case could not be followed, although it was learned that he returned to his work.

DR. MASSEY suggested that the abscess may have involved one of the seminal vesicles.

DR. JOHN B. ROBERTS also reported a case of prostatic abscess presenting symptoms of influenza. In this case rupture took place into both urethra and rectum, and there was also an abscess of the scrotum.

Stated Meeting, September 23, 1896.

E. E. MONTGOMERY, M.D., read a paper entitled

TREATMENT OF RETRO-DISPLACEMENT OF THE UTERUS,

in which he summarized his views upon this subject as follows: In the treatment of retro-displacements of the uterus the displacement itself is generally not of so much significance as the accompanying complication, and no procedure that does not take cognizance of the latter will prove a satisfactory method of treatment. The proper treatment for the varying conditions may be briefly outlined as follows: In recent cases, in which the uterus is freely movable, the medicated tampon or pessary is the preferable measure. In many cases the former will be required as a preparation for the latter. In recent cases, in which there exists a plastic exudate, together with adhesions (and pus-tubes can be excluded), massage, supplemented by the medicated tampon, and restoration of the mobility of the uterus, are indicated, followed by the use of the pessary. In chronic cases, in which the uterus is movable, curettement, followed by suture of the round

ligaments in front of the uterus through an anterior colporrhaphy, is the best plan. When the displacement is complicated by disease of an ovary or tube, curettement, followed by abdominal incision, with treatment of the diseased appendage and fixation of the uterus to the abdominal wall, is the course to be pursued. When there exist adhesions, without serious tubal or ovarian disease, curettement and shortening of the utero-sacral ligaments, after separation of the adhesions through the posterior vaginal incision, will be the measures indicated.

DR. G. E. SHOEMAKER said that in the treatment of retroversion of the uterus great care must be exercised to determine whether or not the condition is the cause of the symptoms present. In many cases these are due to secondary displacement of the ovary, to relaxation of the broad ligaments, with resulting venous congestion, and edema, and impaired circulation of uterus and ovaries. Failure to correct these secondary conditions will result in persistence of the symptoms. The pessary is at best but a temporizing expedient, and is without use in the presence of adhesions. It is, however, useful in a small number of comparatively acute cases as a temporary device to support the uterus until involution can take place. To effect permanent relief, both the pessary and such an operation as shortening of the round ligaments are useless when adhesions are present. Under these circumstances an abdominal operation becomes necessary, and the best is ventrofixation of the uterus. The difficulties that have been noted in the sequence of this procedure can be largely obviated by placing the uterine sutures in advance of the line of the tubes instead of behind that line. Vaginal operations are usually not advisable.

DR. J. M. BALDY maintained that retro-displacements attended with suffering are almost always complicated, and complications of any kind contraindicate the use of the pessary. Many cases of retro-displacement are free from all symptoms, and require no gynecologic treatment whatever. The pessary is probably responsible for pelvic suppuration in some cases. In Dr. Baldy's opinion massage of the uterus is only a refinement of masturbation, and without utility, except when a large amount of lymph has been thrown out into the pelvis. For the complications that attend retro-displacements one of two operations is indicated—hysterorrhaphy, or shortening of the round ligaments. Other abdominal operations are not to be recommended, and vaginal operations are dangerous. Dr. Baldy preferred hysterorrhaphy to shortening of the round ligaments. Both have, however, only a limited field of application.

DR. J. M. FISHER pointed out that when a retro-displacement of the uterus is recognized, inquiry should at once be made for the cause. The majority of such displacements are to be traced to the puerperal state, and are attributable to lacerations of the pelvic floor, distention of the bladder, and of the rectum, the protracted use of a binder, and septic processes. When, with a movable uterus, a retro-displacement exists during pregnancy, or when such a displacement occurs shortly after labor during the process of involution, a pessary may prove useful.

DR. W. E. ASHTON divided retro-displacements into acute, chronic, and complicated. In recent and uncomplicated cases the pessary is the only form of treatment available. An uncomplicated case in which relief does not soon follow the use of a pessary becomes a chronic case. If symptoms are absent no treatment is required. Otherwise, surgical intervention becomes necessary. Under these conditions ventrofixation of the uterus, properly performed, is the preferable procedure. In complicated cases the complicating condition must first receive appropriate treatment. When adhesions are present these must first be broken up; when ovaries or tubes are diseased they must first be extirpated. Under these conditions the best treatment is supravaginal hysterectomy.

DR. MASSEY contended that the initial trouble in all cases of retro-displacement is an inflammatory condition of the uterus, and the best treatment for this consists in a stimulation of the metabolic activities of the tissues by means of intrapelvic applications of electricity.

DR. G. G. DAVIS said that the pathology of retro-displacements is to be found in alterations in the pelvic floor, such as attend labor.

DR. W. S. STEWART attributed to the prevailing mode of dress the principal influence in the causation of retro-displacements of the uterus, resulting in depression of the waist, and compression and displacement of the abdominal viscera.

In conclusion, Dr. Montgomery added that the pessary is of especial utility in the relief of recent retro-displacements, *e. g.*, following parturition. The uterus does not rest upon the posterior bar of the pessary. The uterus must be restored to its normal position before the pessary is introduced. The operation of shortening the round ligaments is only available when the uterus is freely movable, and can readily be replaced and maintained in its proper position. If, in performing ventrofixation, union is established between a small portion of the uterus and the anterior abdominal wall, this band will elongate and permit of movement on the part of the uterus, with less danger of complications. In operating, Dr. Montgomery introduces one suture about the center of the fundus in the transverse line, and another just behind this. The operation of shortening the round ligaments is not applicable to all cases of retro-displacement on account of the degenerative changes in the ligaments, when the condition has existed for a long time.

DR. JOHN M. FISHER exhibited a specimen of multiple fibroids of the uterus, removed from a patient fifty-two years old. There had long been present symptoms of pelvic disease, and the patient had passed a considerable period of invalidism. Complicating the uterine condition was a cyst within the folds of the broad ligament on the left side, which, upon superficial observation, resembled the bladder. The uterine appendages on both sides were also diseased. The progress of the case following the operation was satisfactory.

Stated Meeting, October 14, 1896.

F. W. TALLEY, M.D., read a paper entitled

THE PROPER POSITION OF CELIOHYSTEROPEXY IN GYNECOLOGY.

He cited the objections that had been raised to the

operation, and pointed out that the dragging pains that had been observed to follow in some cases could be attributed to drawing the uterus too high in the pelvis. That the operation predisposes to abortion is an objection aimed at the method employed, and not at the operation itself. If the uterus be attached to the abdominal wall by unyielding buried sutures, or by a broad, firm band of adhesion, it will not enlarge uniformly in accordance with the demands of the developing ovum, and the uterine contents may be expelled, though this does not occur often. If, however, the uterus be so attached as to be still capable of a considerable range of movement, this danger will be minimized. That labor is likely to be complicated, and that Cesarean section should have been a necessary resort in a few cases, is again a fault of the method employed. With the uterus lightly supported and free to move, a serious result could not be anticipated. The operation that has yielded Dr. Talley the best results in parous women consists in a small median incision, under septic precautions, separation of the uterus and appendages from adhesions, elevation of the fundus, determination of the point above the pubic symphysis, to which the uterus may be raised without undue tension upon its ligaments and its suture with two stitches. Boiled silkworm-gut is preferred for sutures, the first strand being passed through the entire thickness of the abdominal wall at the point selected, through the fundus of the uterus in a line midway between the two tubal attachments, embracing about half an inch of the uterine tissue, and through the abdominal wall on the opposite side. The second suture is introduced similarly one-quarter of an inch behind the first on the posterior aspect of the fundus. These stitches are tied tightly, and the remaining wound in the abdomen is closed in the usual manner. The stitches in the abdominal wound are removed in eight days, while those holding the uterus are permitted to remain until the sixteenth day. The patient is preferably kept in bed for three weeks. Celiohysteropexy is indicated whenever a uterus that is displaced posteriorly and is adherent cannot be restored to its normal position by non-operative measures, and symptoms of the following kind are present: Disordered and painful menstruation; backache; bearing-down pain; obstinate headache; loss of appetite; difficulty and pain in defecation, and various general reflex nervous symptoms that cannot be relieved by persistent local treatment. For the relief of prolapse of the uturus in parous women celiohysteropexy is an important adjunct to the plastic operations for the narrowing of the vagina.

DR. CHAS. P. NOBLE said that in his own experience he had not observed dragging pains in the sequence of celiohysteropexy, nor in a study of some 800 cases operated on by American surgeons had this symptom been noted. In these cases, and also in some 600 from foreign sources, there was no evidence that the operation predisposed to abortion. The pessary has a useful place in the treatment of retro-displacements in recent and puerperal cases. When operation is required Dr. Noble prefers that of shortening the round ligaments.

DR. MONTGOMERY suggested that the method of operation described would result in too firm or too light union of the uterus with the abdominal wall. In view of the possibility of difficulty during gestation and parturition, it would perhaps be a better plan of procedure to fasten the round ligaments to the anterior surface of the uterus.

DR. JOHN C. DA COSTA said that the patients who complained of pain following the operation were either hysterical or neurasthenic. The introduction of through-and-through silkworm-gut sutures in the abdominal wall, and their retention for sixteen days, will be attended with danger of dystocia.

DR. J. CHESTON MORRIS stated that he had relieved retroflexions almost without exception by means of the intra-uterine stem-pessary. When a stimulating effect is required a galvanic pessary made of zinc and copper will often yield excellent results.

A. O. J. KELLY, M.D., read a paper entitled

ESSENTIAL PAROXYSMAL TACHYCARDIA, WITH THE REPORT OF FOUR CASES.

The opinion was expressed that the seizures are attributable to transitory disturbance of the functional activity of the vagus—most probably of the centers in the medulla. When the heart-beat is less frequent there may be irritation of the sympathetic. In some cases both sets of phenomena are perhaps present. The affection may thus be looked upon as a neurosis, the manifestations of which may be referred to functional failure of the neuron in consequence of nutritional or allied disturbance. The prognosis is uncertain, and the treatment symptomatic. Thus, relief may be afforded by pressure on, or by electric stimulation of, the vagus in the neck, by pressure upon an ovary, by the drinking of cold water or of hot coffee, or by deep inspiration and the retention of the air in the lungs. Of aid are the application of an ice-bag to the chest, the swallowing of cracked ice, and a cold douche upon the chest, abdomen, or neck.

DR. A. A. ESHNER said that in a considerable number of cases of vaso-motor ataxia in which he had examined the urine, he had found red corpuscles in varying numbers. This occurrence may be attributed to the escape of the cells through the capillaries of the kidneys, relaxed as a result of diminished vascular tone.

DR. S. SOLIS-COHEN was unwilling to agree with any nosologic scheme that would sharply separate cases like those reported from all other cases of cardiac and vaso-motor disturbance. When there exists a large group of pathologic phenomena, comprising cases that shade into one another imperceptibly, it would be a philosophic blunder to draw a sharp line at any one point arbitrarily chosen, saying that cases on this side belong to one group, and cases on that side to another. Tachycardia is thus to be looked upon not as a disease but as a symptom. In considering the adaptation of the theory of the motility of the neuron to the explanation of the phenomena of essential tachycardia, the question arises, why is the contact of the arborescent extremities of the neuron interfered with? It may be assumed that the paroxysm is a toxic manifestation, the toxins being many in number and various in character. These interfering with the functions of the

neuron, the other conditions may occur. To go a step further, it may be assumed that a fundamental fault exists in the physical, chemic, or vital constitution of the nervous centers of visceral life, a failure of development that may be congenital, indeed hereditary; or a similarly faulty constitution acquired as the result of various depressing influences, perhaps infectious disease.

DR. WHARTON SINKLER said that the occurrence of tachycardia in cases of neurasthenia is so common that it is natural to associate the conditions productive of the one condition with those that lead up to the other. The theory of the motility of the neuron, while attractive, is not supported upon any firm foundation, and is purely speculative. Essential tachycardia is probably a disorder of nutrition, as in the cases of neurasthenia in which it is present, it disappears with the primary condition as the state of the nutrition improves.

DR. J. P. C. GRIFFITH disapproved of the employment of the qualification "essential," as a cause must exist, although it escapes observation. The condition is thus equally symptomatic with others in which the cause is more obvious. Dr. Griffith referred to the tachycardia of the menopause, which is often observed in conjunction with other disturbance.

DR. J. C. WILSON referred to two cases of essential tachycardia recently under his observation, one in a man who had endured great hardships in consequence of shipwreck, the other in an elderly lady following anxiety attending the illness of a child, and in addition some pecuniary loss. In both occurred long intervals of relief from symptoms, with recurring paroxysms of great suddenness, and usually without immediate obvious cause. Dr. Wilson coincided in the view that even essential tachycardia must be considered symptomatic.

DR. THOS. J. MAYS expressed the conviction that in some cases of tachycardia organic changes in some part of the nervous system are present. He concurred in the view that in many cases the accelerator nerves are concerned, while the vagus or the medulla oblongata is principally involved. Dr. Mays has found paroxysmal tachycardia associated with angina pectoris and with lead-poisoning. Other metallic poisonings, as well as alcoholism and syphilis, may also act as causes. It was thought that the disorder may be allied to epilepsy and asthma. In treatment, no one remedy or plan is successful. Applications of ice to the neck have been useful in some cases. Most are benefited by strychnin, in conjunction with general supporting treatment.

DR. KELLY, in conclusion, maintained that according to the definition given, there are in addition to cases of symptomatic or reflex tachycardia others that may be properly designated "essential." In many the ultimate etiology is toxic in character; in a number the disturbance is nutritional. The best treatment is practically symptomatic.

CHAS. W. BURR, M.D., read a paper on

THE RELATION OF ANEMIA TO CHOREA.

He reported the results of a study of the number of red blood-corpuscles and of the hemoglobin-estimation in thirty-six cases of chorea. The hemoglobin and the corpuscles were found at the theoretic normal in only two cases. In none was there extreme anemia. In the most aggravated case, the hemoglobin-estimation was forty-five per cent., and the number of red corpuscles 3,450,000. The attack of chorea was mild, but a serious cardiac complication existed. In another case, complicated by epilepsy, the hemoglobin-estimation was sixty per cent., and the number of red corpuscles 3,600,000. In one very aggravated uncomplicated case, the hemoglobin-estimation was sixty-five per cent., and the number of red corpuscles 4,800,000, and in another the hemoglobin-estimation was sixty per cent., and the number of corpuscles 3,850,000. These were the most anemic cases. In twenty-four the hemoglobin-estimation reached eighty per cent. or more, and the number of corpuscles 4,000,000 or more. In twenty-nine the hemoglobin-estimation reached seventy-five per cent. or more. The conclusion was expressed that the blood is rarely absolutely normal during an attack of chorea. There is usually a diminution in the hemoglobin-valuation, and a relatively smaller diminution in the number of red corpuscles. The anemia is therefore chlorotic in type. There is no relation between the severity of the attack and the intensity of the anemia. When the anemia is profound there is usually some complication capable of inducing such a condition. The belief was expressed that anemia is not an immediate, direct, exciting cause of chorea, but infrequently even a predisposing cause. In the large majority of cases the condition of the blood is secondary to the chorea. In the rare cases of chorea that seem to result from mycotic infection, the anemia may be of toxic origin.

DR. SINKLER stated that in the larger number of cases of chorea that come under his observation, anemia is not present. A study of the blood in a considerable number showed generally high valuations for corpuscles and hemoglobin.

DR. ALFRED STENGEL related that in his experience anemia is not a frequent complication of chorea. Although many patients are pallid, examination of the blood fails to disclose any considerable degree of depreciation. It is doubtful if there is even a quantitative anemia. Such deficiency as exists may be attributed to the toxic condition secondary to the infection on which chorea may be supposed to depend. In some cases a moderate degree of leucocytosis has been found. Examinations of the blood in dispensary patients are likely to be fallacious, owing to emotional and vaso-motor disturbance.

DR. JAS. TYSON pointed out the entire compatibility of pallor with a normal composition of the blood as manifested in attacks of syncope.

DR. SINKLER raised a question as to the liability of personal error in counting the number of blood-corpuscles and estimating the hemoglobin-valuation.

DR. STENGEL replied that the liability to error diminishes with the skill of the observer. The variations among novices may be very considerable.

DR. BURR, in conclusion, suggested the possibility that many of the cardiac murmurs heard in cases of chorea and attributed to the state of anemia apparently present, may be due to actual disease of the endocardium.

REVIEWS.

A SYSTEM OF SURGERY. In Contributions by Twenty-five English Authors. Edited by FREDERICK TREVES, F.R.C.S., Surgeon to and Lecturer on Surgery at the London Hospital; Examiner in Surgery at the University of Cambridge. Volume II. In one octavo volume of 1120 pages, with two colored plates and 487 illustrations. Lea Brothers & Co., Philadelphia and New York.

WE have here the second and concluding installment of a valuable contribution to surgical literature, the work of men of acknowledged authority as representatives of the profession in Great Britain. This volume is devoted almost entirely to the discussion of the diseases and injuries affecting the various regions of the body.

The opening article is by Mr. Arbuthnot Lane, on the injuries and diseases of muscles and tendons. It is followed by a chapter on the surgery of deformities, by Mr. H. H. Clutton. Mr. Henry Percy Dean contributes two articles, one on injuries of the head, and the other on the diseases affecting that region. Dr. W. H. Bennett discusses first the injuries and then the diseases of the spine; the former paper being supplemented by a brief essay from the pen of Mr. H. W. Page on concussion of the spine, with special reference to that form of traumatic neurosis to which the term "railway spine" has been applied. Next come chapters on the diseases and injuries of the ear and of the nose, by Mr. A. Marmaduke Sheilds; on the injuries and diseases of the neck, by Mr. Bernard Pitts, and on the surgery of the chest, by Mr. A. Pearce Gould. Affections of the mouth, palate, tongue, tonsil, and pharnyx, are discussed by Mr. H. F. Waterhouse, and a separate chapter of ten pages, written by Mr. W. Bruce Clark, is assigned to the troubles which are met with in the esophagus. Next comes an article by the editor, Mr. Treves, on the injuries and diseases of the abdomen. We trust we shall not be regarded as hypercritical, but it seems to us that it would be more accurate to say "of the abdominal organs." Mr. Treves has himself dealt also with the subject of hernia. Dr. Charles B. Ball gives a chapter on diseases of the rectum, and Mr. W. Watson Cheyne follows with one on diseases of the breast. A chapter on the injuries and diseases of the urinary organs, and another on those of the testes, scrotum, and penis, have been contributed by Mr. Henry Morris, and the volume concludes with a discussion of the injuries and diseases of the female genital organs, by Mr. J. Bland Sutton.

In our review of the first volume of this work we referred to the editor's statement in his preface that it was not his intention to dwell upon the details of surgical procedures. As might be expected, this abstinence is more noticed in the portion devoted to regional surgery, and perhaps the scope of the work would have been more correctly indicated had the title been "The Principles of Surgery." The doctrines held by the conservative school of British surgeons are clearly and concisely set forth. One feels that the authors are expressing opinions of their own, and not such as have been manufactured abroad. Had space permitted, we should gladly have entered upon an analysis of some of the views contained in these pregnant chapters.

The mechanical execution of these volumes is highly creditable. The illustrations vary in artistic merit, but they are all adapted for their main purpose in the elucidation of the text.

OBSTETRIC ACCIDENTS, EMERGENCIES AND OPERATIONS. By L. CH. BOISLINIERE, M.A., M.D., LL.D. Late Emeritus Professor of Obstetrics to the St. Louis Medical College, Etc. Philadelphia: W. B. Saunders. Pp. 381.

THE author announces in the preface that this volume is intended "for the use of the practitioner who, when away from home, has not the opportunity of consulting a library, or of calling in a friend in consultation." The matter is newly written, but includes little that has not been repeatedly said in the treatises on midwifery and the manuals of obstetrics, which the author frankly says his book is not intended to replace, and which should be at the working service of every obstetrician at home or abroad. The man who knows only what is herein taught would be an unsafe attendant in the lying-in chamber. The illustrations constitute the best feature of the work, but they are already familiar to readers of "The American Text-Book of Obstetrics," and are often at variance with the text, notably in the chapter on forceps.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 13, 1896, TO OCTOBER 19, 1896.

Captain Wm. H. Gray, Assistant Surgeon, to be Surgeon, with rank of Major, October 10, 1896, vice Gardner, promoted.

Captain Benjamin Munday, Assistant Surgeon, will in addition to his present duties at Fort Wayne, Mich., examine recruits enlisted at Detroit, Mich., and will furnish medical attendance at the recruiting station in that city.

Colonel Francis L. Town, Assistant Surgeon-General, is at his own request, having served over thirty years, retired from active service this date, October 10, 1896.

Captain N. S. Jarvis, Assistant Surgeon, U. S. Army, granted six months leave of absence with permission to go beyond sea.

Captain Jefferson D. Poindexter, Assistant Surgeon, will be relieved from duty at Fort Riley, Kas., and will report in person to the commanding officer, Willets Point, N. Y., for duty at that post.

Captain William P. Kendall, Assistant Surgeon, U. S. Army, is relieved from duty at Fort Sam Houston, Tex., and ordered to Fort Brown, Tex., for duty at that post, to relieve Major Peter J. A. Cleary, Surgeon, U. S. Army.

Major Peter J. A. Cleary, Surgeon, upon being relieved from duty at Fort Brown, Tex., by Captain Kendall, Assistant Surgeon, will report in person to the commanding general, Department of Texas, for duty as Chief Surgeon of that Department.

Major Henry McElderry, Surgeon, is relieved from duty at Fort Robinson, Neb., at expiration of his present leave of absence, and is ordered to Fort Leavenworth, Kas., for duty at that station, to relieve Major Calvin De Witt, Surgeon, U. S. Army.

Major Calvin De Witt, Surgeon, upon being relieved from duty at Fort Leavenworth, Kas., is ordered to Fort Monroe, Va., for duty at that station, to relieve Major Edward B. Moseley, Surgeon, U. S. Army.

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ORIGINAL ARTICLES.

THE ANTITOXIC AND THE ANTISEPTIC METHODS IN THE TREATMENT OF TYPHOID FEVER.[1]

BY MORRIS MANGES, A.M., M.D.,
OF NEW YORK;
ASSISTANT VISITING PHYSICIAN TO MOUNT SINAI HOSPITAL, NEW YORK.

THE theoretical knowledge on which the hydriatic, the antitoxic, the antiseptic, or indeed any treatment of typhoid fever is based to-day is absolutely inadequate. Facts which appeared definitely established only a few years ago, are now rendered doubtful by new discoveries or the application of different methods of research.

It is quite generally accepted that typhoid fever is a disease due to the presence in the system of the typhoid bacillus and its products; but the exact manner in which this microörganism acts, how it enters the system, and how it elaborates its poison are by no means definitely settled. The majority of observers believe that the typhoid bacilli penetrate the mucous membrane of the intestine, usually through some lesion, however slight, and thus reach the lymphatic system; some enter the blood and pass to the spleen and other organs, the intestinal lesions being a direct result of the local infection. Others (among whom we may mention Sanarelli) believe that the bacilli quickly reach the spleen as above stated, and there elaborate toxins which indirectly cause the intestinal lesions.

A great deal of uncertainty has been caused by the relations of the coli bacillus. The differentiation of this germ from the typhoid bacillus was for a long time a matter of great difficulty. (An extended trial, at the Mount Sinai Hospital, of Elsner's method for the rapid differentiation of the typhoid bacillus showed that the procedure is not reliable.) Indeed, there are some observers, the most eminent of whom is Roux, who maintain that the typhoid bacillus is merely a transformation-form of the coli bacillus. The universal presence of the latter in the intestinal tract, and consequently its constant association with the typhoid bacillus, are facts of which the importance has only recently been recognized.

[1] Read before the New York Academy of Medicine, Section on General Medicine, October 20, 1896.

It is possible that the relation of these two germs may be of great significance in the treatment of typhoid fever. Thus, at a recent meeting of the Lyons Medical Society, Rodet showed that a very close relationship exists between the toxins elaborated by these two microörganisms, and that the febrile reactions in animals which have been inoculated with cultures of them are remarkably alike. The serum obtained from these animals has similar qualities in immobilizing and precipitating the microbes with which they have been respectively inoculated. The protective action of the serum of each was not limited to the microbe that had furnished the material with which the animal had been inoculated, although upon that organism it was the more pronounced; so that, for example, the coli bacilli were almost inert in the presence of serum from the sheep that had received the Eberth's bacillus. Neither the coli-bacillus serum nor the Eberth's bacillus serum had any influence on the Loeffler bacillus. Widal[3] has recently published a method for diagnosticating typhoid fever, which also shows the close relation which exists between these two microörganisms. In eighty cases he invariably observed that the serum of patients suffering from typhoid fever, when added to fresh cultures of coli bacilli, agglutinated and precipitated the latter, as above stated. The researches of Pisenti and Biancho-Mariotti[3] also show how close is the relationship between these two microbes.

Sanarelli[4] found that injections of typhoid bacilli under the skin of guinea-pigs did not cause infection; but if, at the same time, he injected sterilized bouillon-cultures of the coli bacilli into the abdominal cavity, the animal became infected.

Chantemesse and Widal,[5] working independently of Sanarelli, reached the same conclusions. Furthermore, these observers show that old cultures of typhoid bacilli, which are practically no longer active, are roused into activity when mixed with cultures of coli bacilli.

A number of observers, among whom we may mention Stern, Sittman, and Bruschettini,[6] have also frequently found staphylococci in the blood of typhoid-fever patients.

Neither is there any agreement as to the exact toxins which are generated by the typhoid bacillus,

as has been clearly shown by Vaughan in the last edition of "Ptomaines and Leucomaines."

Moreover, Dreschfeld[7] believes that the fever during the first eight or ten days is probably due to the direct action of the bacilli or of the toxins; but during the second and third weeks, when the intestines are ulcerated, another factor is probably the absorption of some septic material into the blood, coöperating with the specific poisons.

The next factor, that of immunity, naturally brings us to the consideration of the so-called antitoxin-treatment. Suffice it to say, we must distinguish between the bactericidal and the immunizing powers of the blood-serum. Thus the serum of patients, both during and after typhoid fever, has a marked bactericidal action upon typhoid bacilli and on other microörganisms; but in this respect it is less powerful than that of persons who have never had typhoid fever. Some observers have stated that this difference is due to the using-up of the so-called protective albumoses during the course of the disease. That the blood of these patients is not powerfully bactericidal against Eberth's bacilli is shown by the fact that these organisms grow freely in the blood during the disease, and, experimentally, it has been shown by Stern[8] that if typhoid bacilli be added to the blood of typhoid-fever patients, only a portion of them will be destroyed, while the remainder will proliferate very rapidly.

On the other hand, the blood-serum of many typhoid-fever patients has marked immunizing properties, which are retained even for a very long period after the cessation of the disease. Thus, Stern[9] has found that it was present in six out of eight convalescents from two to twenty-six days after the last day of the fever, and in three out of five patients from one to ten years after the disease, but it was absent in two patients who had survived the disease over ten years.

Experiments show that infected animals can be saved by the injection of typhoid serum, even many hours after they have been infected.

Attempts have also been made to cure typhoid fever by the injection of bacterial products in various ways: (1) Sterilized cultures of typhoid bacilli; (2) similar cultures of other microbes; (3) serum of immunized animals; (4) serum of convalescent typhoid-fever patients. The first extensive trials of this form of therapy were the well-known cases of Fraenkel,[10] who treated fifty-seven cases by injecting sterilized attenuated cultures of typhoid bacilli, which had been grown on beef-tea made from thymus-glands. These glands were chosen because typhoid bacilli grow actively and virulently in this medium, and also because the secretions of these organs cause a marked leucocytosis when injected into the circulation. Fraenkel claimed that the injections produced a distinct reaction, shortened the duration of the disease, and converted the continuous fever into a remittent. The injections were repeated several times during the course of the disease. The mortality was not published. That these results are due to no specific action of the cultures was shown by Rumpf,[11] who treated thirty cases with similar cultures of the *Bacillus pyocyaneus*. Two cases died. Kraus and Buswell[12] also tried this method on twelve patients, of whom two died; the general results were unsatisfactory. Von Jaksch's experience was the same.

Neisser[14] and Hammerschlag[15] employed the serum of convalescent patients, but without obtaining any definite results. The latter used from 40 to 80 c.c. of serum in five cases, but only once did he see a decided result follow the injection, and this was only temporary. Chantemesse and Widal,[16] F. Klemperer and Levy,[17] and Stern[18] used the serum of immunized animals, but the results obtained were poor. As an example cases of Klemperer and Levy may be quoted. They injected 20 c.c. of the serum of immunized dogs for three successive days, in five patients, during the first week. Morning remissions began on the third day after the injections, and apyrexia was complete by the end of the second or third week. In one case there was a slight relapse. They admit that the cases might have been mild.

Beumer and Peiper[19] by inoculating sheep obtained an antitoxic serum, with which they successfully immunized guinea-pigs. The serum is harmless to human beings, and produces a reaction, but has not yet been employed in the actual treatment of the disease.

The only extensive trials which have been made in the United States with Fraenkel's method have been those of Lambert of New York[20] and Henshaw of Boston.[21] The results in Lambert's 28 cases were as follows: in 15 there was more or less improvement; in 12, no results, probably because the treatment was begun too late; 1 died of hemorrhage. Henshaw's cases were 13 in number. Of these, 8 were satisfactory, 4 showed no decided change, 1 died of hemorrhage. On the other hand, Northrup, in so far as he could judge from 11 of Lambert's cases who were patients of his at the Presbyterian Hospital, is emphatic in his condemnation of the method.

Another form of serum-therapy which, however, strictly speaking, does not belong to the above-

mentioned procedures, is that of the so-called artificial-serum treatment, which was first proposed by Dastre in 1889, and subsequently employed by Sahli, Pinard, and Cheron. The idea is "to wash the blood." Animals are infected, are then freely bled, and artificial serum is injected. The latter is given either in one large injection, or in repeated small ones.[22]

The future can alone decide how much will be accomplished with these methods. The number of cases is too small and the procedures employed are too varied to permit the drawing of any inferences. Is it not possible that the close relations existing between the coli and typhoid bacilli and their serums may be practically employed in the solution of this problem?

Next as to the antiseptic method, so-called. It is indeed peculiar that practitioners have eagerly seized upon this idea long before Eberth's discovery, for antiseptic measures were long ago used by Sir William Jenner, Murchison, Niemeyer, Wilks, Liebermeister, Jürgensen, and Ziemssen. Furthermore, Broadbent, Barr, Wood, Shattuck, Yeo, and many others have been most enthusiastic in its praises, and to-day it may safely be said that it is used by most practitioners in some way or another.

The object of the antiseptic treatment is not to kill the microörganisms in the intestines or in the blood, but, if possible, to diminish, even to a slight degree, their activity, or to neutralize the poisons which they have produced. To the objection that it is impossible to act upon bacteria or poisons which are circulating in the blood, we need only point, as has been said, to the influence of quinin, mercury, and salicylic acid in the diseases for which they are the respective specifics.

As already pointed out, the fever in the second and third week is probably partly due to influences which arise from the ulcerated intestinal areas. Furthermore, we must also bear in mind the close relations existing between the typhoid and the coli bacilli. These factors would indicate that therapeutic measures ought to be employed which will act upon these intestinal conditions.

The question which naturally arises is not: Can we disinfect the intestines, but can we lessen, even in some small degree, the specific local inflammation and the bacterial activity? The former may at once be dismissed, for no agent is known which will have any such action. In answer to the second, much interesting work has been done. Thus, it is definitely established that it is impossible to disinfect the intestines. It is also certain that the ordinary drugs used in the antiseptic treatment of typhoid fever are not able to kill microörganisms whose resistance is less than that of the typhoid bacillus. Stern[23] has recently demonstrated this in a most convincing manner. He chose the *Bacillus prodigiosus*, because it is a germ which can safely be administered, its reactions are so characteristic, and, finally, because it can grow in the absence of oxygen at the bodily temperature. The germs were swallowed with food after some of the antiseptic had been taken, and the administration of the latter was continued for some time after. He used salol (4 to 8 grams daily), naphthalin (0.5 gram, ten times daily), camphor (1 to 2.4 grams daily), beta-naphtol (0.5 gram, four to twelve times daily), and calomel (0.3 gram, three times daily). After all of them, numerous living prodigiosi bacilli could be found in the stools. The same results were obtained when the preliminary dose of the antiseptic was omitted.

Stern[24] also attacked this question from a different standpoint, *i. e.*, he counted the number of microörganisms in a definite quantity of feces, before and after the use of various antiseptics. When any lessening was present, it was but trifling. Similar results have been obtained by Fuerbringer[25] and other experimentors. On the other hand, Bouchard,[26] Sucksdorff,[27] and others claim that the diminution was marked. However, experiments of this kind are of little value, as the normal variations in the number of bacteria in the feces are very great, and, besides, we have at present no positive methods for ascertaining whether the virulence of the surviving microorganisms may not have been diminished. Additional experiments were made by Stern[28] to determine whether the feces, after the use of antiseptics—calomel, for example—contained any of the latter in sufficient quantities to prevent or retard the growth of fecal bacteria. In only one experiment was this result observed.

The final argument advanced against the use of intestinal antiseptics is the utter failure of the method in cholera, a disease in which the bacteria remain in the intestinal tract, and is therefore the disease *par excellence* in which intestinal antisepsis ought to be useful.

Surely a strong case has been made against the antiseptic method of treating typhoid fever, so far as conclusions both theoretical and experimental will allow. And yet it is natural to inquire, how is it, then, that the method still survives and is in such general use, even among those who use hydrotherapy in the disease? Is it possible that

so many and such eminent clinicians as those already mentioned have been grossly deceived?

The answer is that, to some degree, both parties may be right, for, as I stated at the beginning, we are not yet in such a position that we can pass a final judgment on any method of treatment of enteric fever. Summarily to dismiss the method, as has been done by so many, is as unjustified as are the sweeping claims of its advocates, based, as they usually are, upon a number of cases which are entirely too small to justify any conclusions. The only treatment of typhoid which can be judged from the statistical standpoint is that of Brand, for its cases are numbered by tens of thousands. It is possible that future methods of research may be devised which will justify the claims of the antiseptic treatment as a specific form of therapy, but at present it must be relegated to the symptomatic method. Here its employment is of value, and from this standpoint we can readily understand why it was so highly prized by our predecessors, and why our own generation is so loath to dispense with it.

From this standpoint, then, let us consider some of the procedures which have been proposed for the so-called antisepsis of the intestines. I shall not even attempt to enumerate the more important of them, for their number is legion. Henshaw[21] naively states that no less than 150 remedies have already been proposed—a sure proof, if any were needed, that none is a specific.

But it is an error to suppose that these procedures are limited to the administration of drugs for the intestines. The care of the diet, the mouth, and of the lower bowel is of primary importance, and is frequently neglected by those who have not had an opportunity of observing a large number of cases of this disease. A foul mouth and a thickly coated and baked tongue will frequently render feeding difficult and may, moreover, predispose to pulmonary complications. In my service at the Mount Sinai Hospital, I have rarely seen the clinical condition of the mouth, of which the text-books tell us so much, except in very severe and septic cases.

The daily administration of enemata of water ought never to be omitted, even when there is diarrhea. When there is tympanites, the addition of turpentine or of quinin is indicated. As has been shown experimentally, quinin causes a downward peristalsis of the intestines.

First of all, let me mention briefly the oldest and one of the most universally used remedies in this disease, namely, calomel. As usually employed, it is given in one large dose or in several smaller doses on successive days in the early part of the disease, before the tenth day. Others employ it during the second or third week—a practice which is not to be recommended. The fall of temperature which usually follows its use is probably due to the evacuation of the bowel. Others claim that part of the calomel is converted into corrosive sublimate, and that part of the beneficial action obtained from calomel is due to this, the splitting-up being due to the sodium chlorid which is present in the intestinal contents. Against the use of calomel, Fuerbringer, Leyden, Stern, and others have protested most vigorously. As already shown, Fuerbringer and Stern have shown experimentally that stools after the use of calomel contain many living organisms which are less resistant than the typhoid bacillus; furthermore, that the number of living germs in such stools is not much reduced. Leyden states that he has frequently seen bloody stools following its use in typhoid fever. Be this as it may, the use of calomel in the early stages of typhoid fever is one of the routine practices with the majority of physicians of the present day, even by some of those who are enthusiastic followers of the hydriatic measures.

As to the claims that the use of calomel can abort typhoid fever, nearly all agree that such claims are unproved, and are based upon either a faulty diagnosis or the nature of the disease.

Corrosive sublimate is another drug which has found much favor and has been used in various ways, either in dilute solutions alone, or in combination with quinin, as recommended by Broadbent,[29] or in enteric pills. My own experience with the drug has been limited to the last method. For some years I have employed enteric pills, consisting of $\frac{1}{100}$ or $\frac{1}{200}$ of a grain of corrosive sublimate enclosed in Waldstein's coating, which consists of shellac and salol.[30] These pills, as I have proven by repeated experiments, do not dissolve in the stomach, unless its reaction is alkaline. It may happen that enteric pills are passed out undissolved in the stools. This is not due to any fault in the manufacture of the pill, but to the fact that, although the intestinal wall itself is alkaline, the part of the intestinal contents in which the pill happens to be is not necessarily alkaline; hence the salol may not be split up. The use of these pills has been followed by an improvement in the general condition of the patient, the stools become less offensive, and the amount of indican in the urine is lessened.

Mineral acids are among the oldest remedies of this group; indeed sulphurous acid was em-

ployed by Wilks in 1871, on a large number of cases (171), with the loss of only one case. It is a striking commentary on the value of statistics that its use never became popular. Much more rational is the employment of hydrochloric acid. As is well known, the secretion of hydrochloric acid is very much lessened in febrile conditions; hence gastric digestion suffers, not alone on account of this deficiency, but also because the presence of acid is necessary for the separation of pepsin and rennet ferments from their respective proenzymes. The antiseptic action of this acid is too well known to require any further comment. For these reasons, the administration of hydrochloric acid ought to be a routine procedure in most cases of typhoid fever. It may be given dilute in water or in milk, or as a lemonade.

And yet, in spite of all these advantages, its usefulness has been questioned by Stern. I shall grant that all his and Hamburger's careful experiments[21] are correct; that hydrochloric acid, especially when combined with albuminates and peptones in the proportions usually occurring in the stomach, does not kill typhoid bacilli; that the *Bacillus prodigiosus*, which is less resistant than Eberth's bacillus, readily passes the gauntlet of the stomach, except in conditions of hyperchlorhydria, and that his experiments corroborate those made by Miller and Macfadyen, yet, clinically all these experiments lose their value.

Salol is another drug of this class, which is very frequently given with a manifold object, for, in addition to any effect which we may perchance obtain in the intestines, it is also a cholagogue and antipyretic of no mean value. Turpentine is still another remedy which owes its popularity not to any antiseptic qualities which it may possess, but to its stimulant and hemostatic properties.

Of the pure antiseptics, I shall only mention chlorin. Its reintroduction into the therapeutics of enteric fever is due to Yeo,[22] who employs it in combination with quinin. The use of chlorin is by no means new, for it was long ago recommended by Murchison. Good results have been obtained by Byers,[23] Wilcox,[24] and others. Wilcox, who obtained excellent results with it in five septic cases, in which many other remedies had been unsuccessfully employed, emphasizes the fact that the use of soluble antiseptics is especially indicated in the middle and late stages, the insoluble ones being employed in the earlier periods. I employed the method in a series of cases in 1894, but saw no special results from its use; moreover, nearly all of the patients complained bitterly of the taste and odor of the mixture.

To enumerate or discuss any more of these so-called antiseptics would be both a tiresome and unprofitable task. Suffice it to say that those which are still in general use owe their popularity to a combination of qualities, rather than to any specific germicidal property.

The persistence in the search for antiseptic remedial measures is the direct consequence, as I have endeavored to show, of the theory that the specific microörganisms must be encountered in the intestines as early and as energetically as possible. I have also endeavored to show that the pathology and biochemistry have by no means been definitely settled as localized in the intestines; and in spite of the recognition of Eberth's bacillus as the specific organism, we are not sure that there may not exist an important relation, be it in combination or be it genetically, with the coli bacillus. In considering these points, is it not possible that all the attempts with the antiseptic treatment *per se* have proven unsuccessful because it itself is an error, and that what we ought to investigate is the question of the specific, rather than the antiseptic treatment; the prophylactic, rather than the topical and curative procedures?

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THE EFFECT OF FORMALIN-GELATIN ON SUPPURATION IN WOUNDS; A CLINICAL STUDY.

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SOME months ago, Schleich published a report[1] of the results which he had been able to obtain with formalin-gelatin in minor surgical cases, and especially in the presence of suppuration. He treated over two hundred cases in this manner with entire success. The wounds were only mechanically cleansed and then rubbed with a powder of formalin-gelatin, while in the suppurative cases, after incision and escape of the pus, hemorrhage was stilled, and the powder then used as in traumatic wounds. He claimed that an aseptic blood-clot formed in all cases, and that repair took place quickly without the formation of pus. These results were attributed to the action of formalin-vapor, slowly set free over a period of several hours by the digestion of the gelatin by the living tissues of the body.

Formalin is a gas which is readily soluble in water and other substances, but it forms a chemical combination with moist gelatin, and the resulting product is tough, insoluble, and unaffected by acids or alkalies. In a similar manner tannic acid acts upon the untanned hide to form leather. Sheets of moist gelatin after exposure to formalin-vapor are dried and ground to a coarse powder.

Wishing to verify Schleich's claims, I have tested the action of formalin-gelatin in a number of cases at the Vanderbilt Clinic. All of those in which the powder was employed were suppurative ones, as it seemed reasonable to suppose that if it could stop infection already begun, it could prevent it. Beginning with the simplest forms of suppuration, as the method of treatment proved satisfactory, it was gradually extended to the severer cases. My method of using the powder was as follows: The skin was cleansed with soap and water, turpentine, ether, and bichlorid; cocain was injected; a free incision made, and pus and sloughing-tissue curetted away. Hemorrhage was stilled (when time permitted) by pressure with dry gauze, after which the wound was filled with the formalin-powder, and a dry dressing applied. The wounds were dressed daily at first for purposes of observation, though in most instances this was unnecessary. No drains were used, as a drain would defeat the object of the treatment, *viz.*, immediate union.

In all, forty-five cases were treated. Nine of these were either not seen again or were seen only once, and they are therefore excluded. Not one of them, as far as known, developed any unfavorable symptoms. Of the remaining thirty-six cases, three were complete failures. One of them was a suppurating wound involving a joint of the little finger. As it did not appear at the time of operation that the joint was affected, the treatment was insufficient, in that the formalin was not brought in contact with the whole infected area. The following is a report of the case:

R. M., aged thirty years, male, three days before received a cut on back of right fifth digit with a chisel. Infected wound and moderate cellulitis over the second phalangeal joint followed. Wound was enlarged and curetted. Joint apparently was not affected. Formalin-gelatin and dry dressing were employed. First day: Brownish pus was found under a dried blood-scab; finger slightly swollen, and axillary gland tender. Pus was wiped away and dry dressing reapplied. Second day: Wound was found to be suppurating, but axillary tenderness had disappeared. The part was cleansed with peroxid of hydrogen, and dry dressing continued. Third day: Suppuration persisted and joint-crepitus was demonstrable.

In two other cases where suppuration was not stopped by the formalin, no explanation of the failure was evident. The cases were these:

F. T., aged twenty-eight years, male. For one week had suffered from an abscess of finger which broke the day before entrance. Cellulitis of the middle phalanx of right third digit, and a suppurating subcutaneous sinus were evident, but neither bone nor tendon was affected.

Incision, curetting, formalin-gelatin, dry dressing, was the treatment given. First day: Small amount of pus and slough were found, and dry dressing was continued. Third day: More pus was seen and a wet dressing was substituted.

M. S., aged thirty-six years, female. Four days before, an abscess developed at the base of fourth right digit, palmar surface. Cellulitis was moderate. The part was incised, curetted, and a dry dressing with formalin-gelatin applied. First day: Cellulitis had disappeared. Small amount of greenish pus was present. Bichlorid-dressing and gauze were used. Second day: Considerable green pus being present, a new curetting, followed by formalin-gelatin and dry dressing, was tried. Third day: Suppuration was not controlled and a wet dressing was resorted to.

In one other case—the only one of suppurative bursitis treated—the abscess-cavity was so large and the cellulitis so marked, that it seemed like taking a risk to dress it without a drain; but from the result in subsequent cases, I am confident that this was a mistaken precaution.

J. McC., aged thirty-two years, female. For

[1] Schleich, *Therap. Monatshefte*, February, 1896.

twelve days a suppurative prepatellar bursitis had been present. Joint was not involved. By a vertical incision six ounces of pus were evacuated. The cavity extended about three times further toward the inner than the outer side. After curetting, the formalin-gelatin and dry dressing were applied, with a gauze-drain in the larger cavity. First day: Non-drained cavity had collapsed and its walls were adherent; some suppuration occurred from the drained side. Cellulitis was nearly gone. Wet dressing was then applied.

There remain then thirty-two cases which for purposes of study may be divided into indolent suppuration with little cellulitis, acute suppuration with cellulitis, and suppuration which extended to a tendon-sheath (felon) with cellulitis.

In the first class were five cases. No one of these abscesses had a duration of more than three weeks, and there was no suspicion of tuberculosis in any case. They were simply instances which are common enough where the virulence of the suppurative process has somewhat spent itself.

The success of the formalin in this class of cases was very striking. The transformation in two days of an abscess lifting half of the breast up from the chest-wall into two short wounds in the skin is most satisfactory. But it must be admitted that cases of this sort are the easiest to heal, and that indolent subcutaneous abscesses in children will sometimes collapse and heal after an incision is made to evacuate the pus. Four histories from this first class are given.

K. K., aged one and a half years, female. For three weeks an abscess in the neck had existed. Its character was sluggish, and there was no cellulitis. An incision and curetting were followed by the formalin-gelatin and dry dressing. Sixth day: Dressings had been constantly removed by the mother, but no suppuration was discovered, and the incisions were simply skin-wounds.

T. P., aged twenty-five years, female. She had one child, four months old, which was nursed on the left breast on account of small right nipple. Right breast had been sore one week and was fluctuating, but there was no cellulitis. Two one-inch radial incisions to inner and lower sides of right nipple opened into a pus-cavity containing about four ounces of old pus. Irrigation with bichlorid of mercury 1–5000, formalin-gelatin, and dry dressing without drainage comprised the treatment. First day: Upper wound was found to be dry, while from lower wound there was present a small sanguino-purulent discharge. There was no redness. Second day: Not a dram of discharge was apparent. Fourth day: Breast had healed solid to the chest; abscess-cavity was completely obliterated. There was no discharge, but the skin-incisions were indolent. Sixth day: Skin-cuts were granulating.

H. T., aged twenty-six years, male. For one week has had infected wound in palm of hand, making a small, indolent, subcutaneous abscess. Incision and curetting, with formalin-gelatin, and dry dressing formed the treatment. First day: Mouth of cavity was closed by dried blood, with pus and necrotic material underneath. The scab was wiped off, and dry dressing reapplied. Third day: There was no redness nor discharge. Cavity had collapsed. Fourth day: A dry superficial scab was all that remained.

H. McN., aged twenty-five years, male. Has had immense boil on the back of his neck for three weeks. A minute sinus discharged very little pus, and surrounding cellulitis was slight.

After a vertical incision, the old pus and sloughs were curetted out from under the skin which was in good condition. Formalin-gelatin and dry dressing, without drainage, were employed.

Second day: Cavity was nearly obliterated.

Fourth day: Wound was simply a granulating line one-quarter inch wide.

The second class, in which suppuration was active and cellulitis progressing, includes the bulk of the cases, *viz.*, twenty-four. Usually the cause of suppuration was a poisoned wound, and, naturally, most of these were of the fingers. A number of histories are given, though it is impossible to convey an accurate impression of the progress of the cases by such brief notes.

W. T., female, aged forty years. Three weeks before she had scratched the head of a pimple on the back of the neck. Boil was about 1½ inches in diameter, involving the skin and subcutaneous tissues. The surrounding area of acute inflammation was about three-quarters of an inch wide. The treatment consisted of incision, curetting, formalin-gelatin, and dry dressing.

First day: There was a dark-red, jelly-like filling in the wound, but no pus; dry dressing reapplied.

Second day: Jelly-like mass was gone. Wound was gaping, but no pus was found. Dry dressing was again employed.

Ninth day: There was no pus, and wound was nearly covered with epithelium.

P. W., aged forty-two years, male, presented a suppuration following scratch by tin received four days before. Last two phalanges of the fourth right digit were inflamed, and subcutaneous pus was evident. Incision, curetting, formalin-gelatin, and dry dressing comprised the treatment.

Second day: Swelling had subsided, and a soft slough came away. Dry dressing was reapplied.

Fourth day: Wound was doing well. Dry dressing again applied.

Eighth day: Superficial granulation only remained.

J. B., aged twenty-four years, male. Had an abscess of five days' duration in the web of the left thumb. Localized cellulitis was present.

The usual method of incision, curetting, formalin-gelatin, and dry dressing was employed.

First day: Cellulitis and pus had disappeared. Dry dressing was reapplied.

Second day: Wound was moist, but there was no pus. Again applied the dry dressing.

Fourth day: Wound was only one-half inch deep and granulating.

H. K., aged twenty-three years, male. Five days before had scratched his wrist. For two days it had been swollen, and an abscess had developed over the head of the left radius. Incision, curetting, formalin-gelatin, and dry dressing were employed.

First day: Cellulitis was gone, but much brownish pus was found under the formalin-crust. Slight curetting was done and more formalin-gelatin applied.

Third day: Wound was much smaller and granulating.

M. K., aged thirty years, female. For four days her right fourth digit had been painful and swollen. Foci were discovered on both sides of the last joint, that on the outer side fluctuating. Local cellulitis was present. Pus was liberated by incision and curetting. Formalin-gelatin and dry dressing were used.

First day: Swelling and pain have persisted, and inner focus was more prominent. Pus was seen in the wound. A second incision was made on inner aspect of finger. Both sides were curetted, and formalin-gelatin and dry dressing were applied.

Second day: Both cuts were moist, but cellulitis was gone. Dry dressing.

Fourth day: First cut had entirely dried up. The second presented a small cutaneous slough.

Fifth day: Second cut had scabbed over, with a drop of pus under the scab.

Seventh day: Second cut was a small superficial granulation.

As instances illustrative of the third group of cases (suppuration about tendons), the following cases are submitted. The action of the formalin was substantially the same as in the cases of the second class:

J. S., aged twenty-five years, male, for a week had suffered from an inflammation on the palm of right second digit of the first phalanx. Incision; curetting, formalin-gelatin, dry dressing was the treatment. First day: Wound was moist, but there was no pus. Third day: Cellulitis had gone, and recovery was rapid.

J. McC., aged thirty-nine years, male, had been sick several weeks. He had several points of suppuration in neck and hands. The worst was in palm of left hand, where the pus extended down to the flexor-tendons of the second digit. A three-inch incision, curetting, formalin-gelatin, and dry dressing were employed. First day: No pus was found. Central portion of wound contained some necrotic tissue, blood, and moist gelatin. The ends of the wound were already adherent. Cellulitis had diminished. Third day: Cellulitis had not increased. A small amount of pus and much slough were seen in the central part of the wound, and a wet dressing was applied.

CONCLUSIONS.

Unsatisfactory as these brief descriptions are, it must be plain, even from their perusal, that the formalin has some antiseptic action. That was evident enough to one seeing the cases. But it fell far short of the point where one could say that it rendered a suppurating wound sterile. It seemed rather to control the infection for two days; and if the character of the wound was such that this respite was enough to insure its closure, the result was perfect. If not, then whatever gain was made in the first two or three days was maintained, and the wound went on with its customary granulating from that point. This, however, is a distinct advance over the usual treatment. At the end of the second or third day, instead of having a wound distended to its full size by the gauze-packing put in at the operation, one finds, on removing the dressing, a wound perhaps united altogether below the skin—at the worst half united; so that the time, until complete cicatrization has taken place, must be reduced by several days.

A second point in favor of this treatment with formalin-gelatin is that it does away with the necessity for drainage. If the abscess-cavity is large, and there is purulent or serous fluid to escape, it finds its way out readily enough by the side of the mass of gelatin, while the grains of the latter, softened by the fluid, form in themselves an excellent capillary drainage. It was only in one or two cases, in which the abscess was small and superficial and the incision a very short one, that a dried scab prevented discharge.

This brought up the question whether some other powder would not answer as well as formalin. To test this I selected acetanilid and used it in a half-dozen cases, as I had used formalin. It does not readily mix with water, and so it was more unsatisfactory to rub into a wound; but the patients told me that there was no pain after the dressing was put on, whereas there is more or less pain with formalin for four or six hours. The wounds looked so well on the second, and sometimes on the third day, that I had almost concluded that formalin-gelatin acted merely mechanically; but they suppurated, with scarcely an exception, in the course of a few days.

In no case treated did I succeed in getting primary union of the skin. It seems impossible that

Schleich obtained an immediate union of the skin-edges, as, unless they are stitched together, they invariably retract a little. The ideal treatment of an abscess would be to sew it up again, but that is not possible until a more perfect antiseptic is obtained than formalin-gelatin proved in my hands. None the less, it seems to mark a distinct advance in the treatment of suppuration, giving the most perfect results in those cases where the cellulitis is moderate and the pus abundant.

SERUM-THERAPY AND PROTECTIVE INOCULATION.[1]

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PLINY, in speaking of Mithridates, who was famed for his knowledge of poisons and their antidotes, says that he used the blood of the ducks of Pontus to mix with his antidotes to make them more potent. This he did because he had noticed that the ducks fed upon poisonous substances and remained unharmed. It would seem that Mithridates foreshadowed the modern discoveries in serum-therapy and protective inoculations.

The first important announcement in serum-therapy was made by Babes and Lepp, of the Pasteur Institute, in July, 1889.[2] They reported that the blood of dogs immunized against rabies, when injected into susceptible animals, conferred a certain amount of immunity upon them. The following year both Fraenkel and Behring produced immunity from diphtheria in guinea-pigs.

Diphtheria.—In diphtheria we have an ideal disease in which to use an antitoxic remedy. In the human being, the specific organism grows in a localized area, the absorption by the blood and lymphatics of the toxin produced by the organism causing the constitutional symptoms. The disease is self-limited and the defense on the part of the individual lies in the formation of an antitoxic principle in the blood, that acts directly on the toxin, neutralizing it. Clear it is, then, that if we can introduce into the body, early in the disease, a sufficient quantity of the antitoxin to counteract the effect of the toxin already formed, we have an ideal remedy.

The discovery of the bacillus of diphtheria by Löffler was followed closely by the discovery of its toxin by Roux and Yersin of the Pasteur Institute. Brieger and Fraenkel in 1891 confirmed these discoveries. They found that cultures of the organism grown for some time were more virulent than fresh cultures, or, in other words, smaller quantities of the old cultures produced the same effect as larger quantities of those of more recent date. The toxin, according to Brieger and Fraenkel, is a toxalbumin, and they base their opinion on the following facts :

It is soluble in water and insoluble in alcohol; it is destroyed by a temperature of 60° C., and it will not pass through a dialyzing membrane. Park and Williams in their recent article on the diphtheria-toxin, in the first number of the *Journal of Experimental Medicine*, brought out the fact that the production of the toxin depends upon the reaction of the medium in which the organism is grown. According to them, it is formed best in a neutral medium to which 7 c. c. of a normal soda-solution has been added. The toxin is generally formed in this in from three to seven days.

The production of immunity from diphtheria was first accomplished in 1890 by Fraenkel, and independently in the same year by Behring. Fraenkel injected 10 c. c. of a culture heated to 70° C. for an hour into the abdomen of guinea-pigs. After about ten days' time a transient immunity was observed. If it took ten days' time to produce an immunity, plainly there was but little hope of applying the remedy therapeutically. But while this fact was being discussed by the various medical authorities, Behring and Kitasato announced in their famous article which appeared in the *Deutsche Medicinische Wochenschrift* for December, 1890, their discovery in regard to immunity. This immunity was produced by transfusing blood-serum from an immunized animal into one on which immunity was to be conferred. Behring and Wernicke first produced immunity by injections of cultures attenuated by the use of ter-chlorid of iodin. Aronson, too, deserves great credit for his researches, both in producing immunity and in his practical application of it in the treatment of children.

The first application of the diphtheria-antitoxin to the human animal was made in Von Bergmann's clinic in Berlin during the year 1891, and in the following year by Henoch of Berlin and Heubner of Leipsic. These experiments were only partially successful owing to the insufficient strength of the serum. Stronger and stronger serums were produced and many reports were published, but the subject remained confined to narrow limits. In September, 1894, however, it was made a theme of general discussion and investigation by the

[1] Prize-essay for 1896 of the Alumni Association of the College of Physicians and Surgeons, Baltimore.

[2] I am indebted to Sternberg's book on "Immunity and Serum-Therapy" for many of the statistics contained in this paper, notably in connection with minor reports on diseases of animals and yellow fever.

memorable address of Roux before the International Congress of Hygiene and Demography, held at Budapest.

The antitoxin possesses no bactericidal properties and has no effect on the specific organism itself. It acts directly on the toxin, a definite quantity of antitoxin being required to neutralize a given quantity of the toxin.

For scientific confirmation of the value of the treatment it is only necessary to refer to the analysis of more than 7000 cases by Welch. This analysis shows that the fatality in 7166 cases of diphtheria treated with antitoxin was 17.3 per cent. The reporters of these 5000 cases also reported their previous or simultaneous fatality in the treatment of the disease without the use of the antitoxin. Basing a calculation on their lowest figure, it was found that there would have been a fatality of 42.1 per cent. in the 5000 cases, had the antitoxin not been used. There was, therefore, an apparent reduction in case-mortality of 55.8 per cent. by the use of antitoxin.

The effect of antitoxin on children who have diphtheria is usually very marked, a fall in the temperature and a marked improvement of the general condition being observed. The local symptoms subside much more rapidly than under other methods of treatment. No bad effects follow the administration, the only untoward symptoms being an occasional urticaria.

Tetanus.—Closely associated with the discovery of the new treatment of diphtheria is the discovery of the antitoxin of tetanus.

The specific organism is found at the seat of inoculation in comparatively few numbers, but it forms a poison that is absorbed by the tissues, causing the well-known symptoms of the disease. This toxin is now regarded as a toxalbumin. Brieger was the first to separate it. From bouillon-cultures he obtained a substance which he called tetanin. By further researches, together with Fraenkel, Kitasato, and Cohn, he separated the toxalbumin by precipitating it with ammonium sulphate and thoroughly washing it in water in a dialyzer.

Kitasato, in 1891, succeeded in producing immunity from tetanus in rabbits by inoculating them with the filtrate of tetanus-culture, and afterward with terchlorid of iodin. Blood drawn from these animals is said to destroy the power of the toxin when mixed with it. Behring, continuing his researches, produced immunity in horses by means of a bouillon-culture, to which terchlorid of iodin had been added. He used a culture of which seventy-five hundredths c. c. would kill a rabbit in from three to four days. Carbolic acid sufficient to make a five-tenth-per-cent. solution was added to preserve the culture, and then 10 c. c. of this mixed with twenty-five hundredths per cent. of terchlorid of iodin was injected. At the end of eight days, the horse was given another injection, this time of 20 c. c. Increasing the dose of the culture and decreasing the amount of terchlorid of iodin, the animal was rendered immune, about 200 c. c. of the above-described mixture being necessary to produce the desired effect.

The blood of horses so immunized is very antitetanic ; that is, its immunizing power for other animals is very great. It varies from 1–100,000 to 1–200,000 ; in other words, a man weighing 60 kilograms would require 60 c. c. given in about two days, to produce immunity. After infection has taken place, the quantity of serum necessary to produce any effect must be at least one thousand times as great as that required to cause immunity. Naturally, one could not inject such a large quantity into a human being, nor could the body absorb and dispose of it. The next step in the production of an antitoxin of greater strength was the work of Brieger, Kitasato, and Wasserman. The tetanus-bacillus, grown in thymus-cultures, does not form spores, and is therefore not so poisonous. These cultures were used to immunize goats, and from the milk of these goats there was separated an antitoxin very much more powerful than that formerly produced.

Tizzoni and Cattani made the next advance when they found that they could precipitate the antitoxin from the blood-serum by means of alcohol and so obtain it in a dry form. The dose of this dry antitoxin is from 40 to 50 centigrams. The first application of the remedy to the human being was in a case of Schwartz of Padua. The solid antitoxin was dissolved in water and injected under the skin, 60 centigrams being given in three days. The treatment was started on the ninth day, when the case was regarded as hopeless, but the patient recovered.

According to Sternberg, the dried tetanus-antitoxin has been used successfully in eleven cases. Where rabbit-serum was used in its preparation the cases did not do so well. Maragliano stated before the Italian Congress in 1895 that thirty cases had been treated, and that only thirteen recovered. Vaillard of the French Academy of Sciences takes the following view of the subject: The remedy is powerless to cure fully developed cases of tetanus, either in men or in animals, or the rapid, acute cases, or those in which intense

nervous symptoms have developed, showing that intoxication has taken place. However, he recognizes its value in cases of slow development and where intoxication is gradual. The immunizing power of the remedy may be of considerable practical value, even though the cure of the disease is uncertain. It confers immunity for from two to six weeks, according to the dosage. The antitoxic action is less if it be introduced with the muscle, as the antitoxin seems to cause phagocytosis as well as to act chemically, and phagocytosis is not so active in muscular as in other tissue.

Streptococcus-infection. Of great interest to the surgeon and obstetrician are the researches upon the application of serum-therapy to streptococcus-infection. The *Streptococcus pyogenes* is the etiological factor in puerperal septicemia, in various forms of septic intoxications, and in septicemia from abscesses of streptococcic origin. It is also of importance as occurring in the mixed infection-cases of diphtheria, where it coexists with the Klebs-Löffler bacillus.

Among the earlier investigations in this direction may be mentioned those of Emmerich and De Mattei, in 1886–87. They found that the streptococci injected into rabbits having anthrax, arrested the progress of the disease. Subsequently, they showed that blood-serum from animals with streptococcus-infection would, when given shortly after inoculation, prevent the progress of the disease.

The practical application of serum-therapy to streptococcus-infection, however, was made by Marmorek of the Pasteur Institute. Roger and Charin, however, claim to have been working at the subject for some years.

Marmorek, early in 1895, reported to the Biological Society of France the result of his experiments as regards the curative action of the serum in animals, and in the annals of the Pasteur Institute for 1895 he described his methods and reported his cases. The *Streptococcus pyogenes* loses its virulence rapidly when grown on artificial media; this difficulty was partially overcome by using a mixture of two-per-cent. human blood-serum in one-per-cent. peptone-bouillon, and less satisfactorily by substituting ascitic fluid, using one part fluid and two parts bouillon.

The streptococcus was first obtained from a case of sore throat. By intravenous injection into rabbits, using the blood of the dead rabbits for the succeeding injections, Marmorek succeeded in producing cultures of such virulence that one-billionth of a cubic centimeter, even if diluted, would kill a rabbit. This culture was then injected into larger animals, such as asses, horses, and sheep, the injections being at first very small, 1 c. c. as a primary dose causing very marked illness. The injections were given at rather long intervals. No matter how virulent the culture, at least six months' time is needed in order to obtain an active serum. Four weeks are then allowed to elapse so that the fever may subside. At the end of that time, the animal is bled, and the serum is obtained by the usual procedure. This method differs from those of Behring and Roux in obtaining diphtheritic serum, virulent cultures being used instead of toxins. The sterilized filtered cultures possess but little toxic power.

Horses immunized against diphtheria stand the inoculations much better than any others, and the fact suggested to Marmorek the possibility of producing antitoxins for mixed infections. The preventive power of the antistreptococcic serum prepared in this manner is very great as regards animals. A rabbit weighing 1500 grams, when given one-fifth c. c. of the serum, may be injected with ten times the fatal dose of a streptococcic culture and still remain in good health. Notwithstanding the startling results obtained by the use of the serum in animals, Marmorek has not drawn any hasty conclusions as regards its application to man. In many isolated cases it has proved an excellent remedy, and in erysipelas the death-rate of 3.87 per cent., in place of the usual five per cent., in 413 cases is very noteworthy.

The serum is given in doses of from 10 to 20 c. c., according to the virulence of the particular case. Chrobak of Vienna, while not expressing an opinion on its curative properties, regards it as harmless, and in his case, so far, as very efficient. Chantemesse of Paris gives the following interesting statistics in his service at the Erysipelas Hospital: "Under ordinary treatment there was a mortality of 3.79 per cent. in 554 cases. Using Marmorek's serum of moderate strength, possessing a preventive power of 1–7000, there was a mortality of 1.68 per cent. The supply of strong serum ran out, and during several months a weak serum of 1–2000 preventive power was used. During this time in 107 cases there was a mortality of 6.54 per cent. When the strong serum was again obtainable, a very strong one, having a preventive power of 1–30,000, was used in 97 cases, with a mortality of 1.03 per cent.

"Taken altogether there were 501 cases treated, with an average mortality of 2.59 per cent. This, as compared with 3.79 per cent. mortality under ordinary treatment, is very encouraging,

especially when one takes into consideration the fact that the mortality was greatly raised by the forced use of a weak serum."

Quite a number of cases have been reported in which Marmorek's serum, and that of Roger and Charrin, have been used in puerperal septicemia. The clinical picture in favorable results was about as follows: The cases injected were usually those in which quinin and intra-uterine douches had proved of no avail. After the first injection there was a fall in temperature, and a great improvement in the general condition of the patient. The convalescence had been of but two weeks' duration, and attended by no discomfort. The treatment had also been used in post-operative peritonitis with considerable success. The untoward symptoms caused by the serum are occasional attacks of erythema, and sometimes slight pains in the joints and muscles. In the use of Marmorek's serum, no bad effects were seen unless the serum had been taken without allowing sufficient time to elapse between the injections, when urticaria and local swelling at the seat of inoculation occurred. There are no reports on its use in septicemia and pyemia.

Tuberculosis.—Unlike diphtheria and tetanus, which are ideal diseases for the application of serum-therapy, tuberculosis presents no favorable points, not being a self-limited disease, but going on from bad to worse.

Science took a great step forward when Koch, in 1884, discovered the bacillus of tuberculosis, and his subsequent experiments with tuberculin are of great scientific interest, if not of very much practical value.

The lesions caused by the tubercle bacillus are due to the toxin of the organism, which is to be regarded as a toxalbumin. It is formed in the body and also in cultures grown on artificial media. It is soluble in glycerin, and insoluble in alcohol, and can be separated from the cultures by comparatively easy means. The tuberculin of Koch is a glycerin-extract of this toxalbumin, obtained by growing the bacilli in a five-per-cent. glycerin beef-extract. This is put in flasks with a flat bottom, such as the Erlenmeyer flask, and when inoculated from glycerin-agar or blood-serum cultures, forms a white film over the surface. In about six weeks' time, development ceases and it falls to the bottom. The beef-extract is then evaporated to one-tenth its volume and it is the resulting product that Koch and so many of his followers used in their experiments a few years ago. By treating the extract with alcohol, a precipitate is obtained that has all the toxic properties of the original culture. The tuberculocidin of Klebs is a very much purified precipitate, made by washing the extract in chloroform and redissolving it in carbolic-acid glycerin.

The tuberculin was injected in increasing doses beginning with one-tenth of a milligram. Results were, as a whole, unsatisfactory. Cases of skin-lesions, where the bacilli were few and not very active, were greatly benefited, and some dermatologists still use this treatment in lupus and cutaneous tuberculosis. In animals, such as guinea-pigs, a certain amount of tolerance to inoculations with tuberculous matter can be obtained by injections of tuberculin.

This agent has another use; that of confirming the diagnosis of tuberculosis. It is used in the case of cattle, from one-tenth to five-tenths of a gram of tuberculin, diluted with ten times the quantity of a five-per-cent. carbolic-acid solution, being injected into the shoulder of the animal. If it be tuberculous, a pyrexia of varying intensity will follow. The rise of .5° C. to 1° C. is regarded by different observers as pathognomonic evidence of the presence of the disease. The pyrexia may go higher in severe cases. If the animal is non-tuberculous the reaction will be very slight.

Tizzoni and Centanni were the pioneers in the application of serum-therapy to tuberculosis. They found that the blood of guinea-pigs, immunized against tuberculosis, contains an antitoxin that can be used in the treatment of guinea-pigs suffering from the disease. Richet and Hericourt in 1889, by using blood-serum, were able to retard the progress of tuberculosis in these animals. They claim also to have used with success the blood-serum of an immunized dog in treating tuberculosis in a man, and, subsequently, in a woman.

Bernheim in 1894 obtained some partially satisfactory results by immunizing animals with cultures sterilized at 60° C. for one hour and a half, and then filtered. The blood-serum from these animals was used in doses of from 1 to 3 c. c. Paquin in 1895, by making use of a serum from immunized horses, also obtained results which caused him to think that the serum is a valuable remedy in treatment, rather than a specific. Brivet of Marseilles reported to the Biological Society of France that in 1894 he immunized goats by means of tuberculin. The blood-serum of these goats, in doses of from 2 to 4 c. c., was used in eight cases; three slow, apyretic cases did well, and two cases in the second stage improved; in the later stages the agent proved inefficient or had a detrimental effect. Broca, using the blood-serum of immunized dogs, obtained favorable re-

sults in skin-lesions. Maffuci and De Vesty recently reported the results of the use of blood-serum of sheep, immunized by the injection of dead tubercle bacilli, in the case of experimental tuberculosis of guinea-pigs, and say that it exerted neither a prophylactic nor a curative effect, but merely retarded the morbid process.

By far the most interesting and successful report is that of Maragliano of Genoa before the British Medical Association in July, 1895. He claimed that the experiments of Richet and Hericourt, of Babes and of Paquin, were made with ovian or human tuberculosis, and were not at all encouraging. The method by which he has been experimenting, during the past three years, consists of obtaining toxic substances, that will kill a guinea-pig in two or three days, from virulent cultures of bacilli from the human being. With these he immunized animals naturally refractory to tuberculosis, such as asses, dogs and horses. He said that under the use of his serum the physiological changes taking place in tuberculous subjects are a slower pulse, higher arterial tension, and an increase in leucocytes, and red blood-corpuscles, together with improved appetite and nutrition, and considerable gain in weight. The serum causes no more pyrexia than the serum from healthy animals, unless administered in large quantities.

Leprosy.—Closely allied to the tubercle bacillus, in form and character, is the bacillus of leprosy, the discovery of Hansen.

On November 22, 1895, Carrasquilla reported to the National Academy of Medicine of Colombia at Bogota a series of cases of leprosy treated with antileprous serum. Fifteen cases of the anesthetic type, and several of the tubercular variety, were treated with a remarkable degree of success. Unfortunately, Carrasquilla did not mention the method he uses in preparing the serum, but a note in the *Journal of the American Medical Association* says that it was made by introducing leprous tissue into animals, and subsequently preparing the blood-serum according to the usual method. The results of the treatment by this method are summed up by Medina, who furnished the reports of the cases as follows:

The sensation is restored more or less rapidly according to the extent and gravity of the lesions of the peripheral nervous system. The discolored patches lose their abnormal color without disappearing entirely. Edemata subside rapidly in some cases, slowly in others. The skin shrinks and resumes its physiological condition after absorption of the edemata. Tubercles shrink, break down, and disappear by absorption, desquamation, or suppuration, leaving traces of their existence at the affected spots. Ulcers, after having presented copious purulent secretion, rapidly clean off, and are covered with healthy skin; scars from former suppurating lepromata fade and tend to assume the same level as the surrounding skin. Ulcerating mucous membranes form a cicatrix, fade like the skin, and recover sensibility; while tubercles break down. The face loses its leonine appearance. Lastly, the patient recovers his appetite and ability to sleep, and the mental state improves. Carrasquilla further stated that at a future date he would describe his methods, and show how the various ill effects, arising during treatment, may be effectually prevented.

I am indebted to Dr. Alvarez, who has been in correspondence with the Colombians, for further information upon this subject. He tells me that the serum has not proved as successful as it at first promised to be, and that many cases have relapsed, one patient having died from the disease.

Leprosy is not well adapted to the application of serum-therapy. The disease is one which is not self-limited, and this is one of the principal points to be considered.

(To be continued.)

CLINICAL MEMORANDA.

AMENORRHEA DUE TO COMPLETE OCCLUSION OF OS UTERI FOLLOWING LABOR.[1]

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COMPLETE occlusion of the internal os due to injuries received at childbirth or from instrumental interference is not common. I have seen two cases. When it does occur hematometra, pyometra, or physometra, are the expected results. In the case reported a simple amenorrhea followed.

Mrs. X. consulted me February 19, 1894, and at that time gave the following history: She was thirty-three years old, married seven years, the mother of one child at full term, December 16, 1891, and one abortion at two weeks about one year earlier. The child was born dead, supposed to be due to a very hot bath taken five days before labor commenced. Labor was normal so far as she knew, she was in bed thirteen days, and had some fever (101°), for which the nurse gave intra-uterine injections. The milk appeared in the breasts and was dried without any mastitis; the flow lasted three weeks, otherwise the puerperium was uneventful.

Six weeks later the patient had crampy abdominal pains

[1] Reported before the Kings County Medical Association June 9, 1896.

lasting for three days; these recurred from fourteen to twenty-one days for several times, and then every twenty-five days up to the time I saw her. This was her regular type of menstruation. Not a drop of blood was passed. Her family doctor was consulted and pronounced her pregnant again. With advent of her pain (six weeks after labor) she was given galvanism. Many opinions were expressed and many modes of treatment were adopted by several physicians, the most positive of which was that she had reached the menopause, because the doctor had on repeated occasions passed a sound into the cavity of the fundus. When she came to me she complained *only* of *crampy* pain in the lower abdomen, lasting three days, and recurring every twenty-five days, and absence of menstrual flow. Examination revealed an inconsiderable laceration of perineum and cervix, with complete occlusion of the uterine canal at the os internum. The uterus was not enlarged.

On April 7, 1894, twenty-nine months after labor, under ether-anesthesia, I forcibly established the uterine canal, and inserted a solid glass stem which was worn for nine weeks. There was no appreciable accumulation of blood in the uterine cavity. Two weeks later menstruation returned normally and painlessly, and has recurred every twenty-five days to the present time. I have seen many cases in which nature has shown herself a most capable conservative physician or surgeon, but never before to the same extent as is shown by this case, which of course illustrates the possible rather than the probable. I have been unable to find a similar recorded case. Three causes may have been active: injury at the time of delivery; injury from intra-uterine irrigation in the hands of the nurse, and injury from galvanism six weeks later.

A CASE OF HYSTERIA WITH ATAXIA CONFINED TO ONE LEG.

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B. C. WHITE, male, 56 years old, upholsterer, was admitted to St. Joseph's Hospital on June 24, 1896. His history taken by my resident Dr. J. W. Colby is as follows: Previous health good, except that he had Chagres fever in 1890. He denies syphilis. He has taken alcohol daily, but in moderate quantities for years.

About one year ago he noticed "a peculiar sensation in the left leg as though worms were crawling over it." This lasted about two months and was followed by a feeling of extreme coldness, which still persists, in the entire left side. At times when walking he loses feeling in the left foot and is unable to locate its position. Three days before coming to the hospital, while walking in the street and without any preceding vertigo or headache or ill feeling of any kind, he suddenly fell unconscious as if shot. In a few minutes he regained consciousness and found himself sitting on a neighboring doorstep, where he had been put by some passers-by. He got up, walked eight squares, about three-quarters of a mile, to his home, went to bed and slept well. Next morning he was dull and confused and walked with uncertain gait, because as he says he was not sure of the position of the left leg. He has never before had a similar attack, been palsied, nor had convulsions.

The temperature on admission was $101\frac{1}{5}$° F., falling to normal in twenty-four hours and there remaining. He is a well-built, healthy-looking man. There are no objective signs of alcoholism or syphilis. While in bed or sitting he moves the arms or legs well, neither palsy nor ataxia appearing, but as soon as he gets upon his feet a certain motor-difficulty is seen. He has great trouble in standing, much increased by closing the eyes. The left knee and hip are alternately flexed and extended, and the trunk sways backward, forward, and laterally, but always to the left side. After a minute or two, if the eyes are shut, the movements of the left leg become quite wide in extent and he falls. In walking, which he can only do with the eyes open, he has great difficulty in putting the left foot where he wishes, the trouble being purely ataxic and not at all paralytic. He cannot follow a straight line, but always deviates toward the left. On the other hand he cannot turn around toward the left. So soon as he completely lifts the right foot from the ground and attempts to rotate the left upon the floor, the left leg begins to jerk, the body to sway, and he falls with some violence. He turns fairly well to the right. Under all conditions the ataxia of station is greater than that of motion. He can stand upon the right foot alone as well as, or even better than, upon both, and can stand upon the left only long enough to take a step with the right. There is no ataxia in the right leg, the disturbance of equilibrium occurring when he stands upon it, being caused by the irregular movements in the left leg. All movements of the arms are executed well. In short he stands and walks like a man drunk in one leg. He has, one may say, astasia abasia of one leg. There is anesthesia to touch, pressure, pain, and temperature over the entire left side from crown to toe, and stopping precisely at the middle line. Taste-sense is absent on the left half of the tongue, and there is partial deafness in the left ear. Dr. S. Lewis Ziegler examined the eyes and reports: "Pupils equal, moderately dilated and react well to light and with accommodation. Vision $\frac{20}{40}$ in the right eye, $\frac{15}{200}$ in the left. In the right eye there is no fundus-lesion and the field of vision is normal. In the left eye the disk is funicular and pale. There is some choroidal stippling with absorption of retinal pigment. The field of vision is concentrically reduced to a small area corresponding to the macula lutea.

The plantar, patellar, and cremasteric reflexes are normal on both sides. There is no local muscular wasting, nor any trophic changes in the skin or joints. Speech and voice are normal. His mental condition is good and he is not very emotional. The urine contains neither albumen nor sugar. There is no trouble with the bladder or rectum. Examination of the heart and lungs is negative. The pulse and respiration are normal.

On the third day after admission the hemianesthesia disappeared, but the contraction of the visional field of the left eye, the unilateral loss of taste and partial deaf-

ness, and the motor trouble continued. The last symptom rapidly improved and on leaving the hospital ten days later he was able to stand quite well, though still unable to turn sharply to the left.

The diagnosis needs no argument. It makes itself. The man has hysteria. The hemianesthesia, the contraction of the field of vision, the sudden return of sensation, the gustatory and auditory symptoms, the rapid recovery, all point unmistakably to it.

The case is interesting because hysterical ataxia confined to one extremity is rare, but more because it is an experiment made by nature which throws some light upon the mechanics of muscular coördination. We have a man completely anesthetic in arm and leg. In the arm all movements are perfect, in the leg all are widely incoordinate while standing, an incoördination which continues after sensation returns. With the eyes shut he knows perfectly the position of the arm actively or passively moved, but knows nothing of the position of the leg save when he looks at it. It must follow, as indeed has been repeatedly shown in many cases, both functional and organic, that anesthesia of the skin is not by itself sufficient to cause ataxia, and further that the so-called muscle-sense, by which we recognize movement and position, is not a mere modification of skin-sensation but something entirely different. What the elements that go to make up the muscle-sense are, and where the stimuli act, is still disputable. The simplest explanation is that it, like other sensations, is peripheral in origin, is the sum total of sensory impulses arising in and carried from the muscles, tendons, joints, and in much less degree, if at all, the stretched and folded skin whenever a group of muscles is in action. This is based upon the clinical fact that disease of the spinal cord or of the sensory nerves from the muscles, in the absence of any central lesion and without disturbance of common sensation, may cause ataxia, and further, because in health passive movements which certainly are not accompanied by any causative central act, either motor or sensory, are well realized by the subject. But it is maintained by some that the matter is not so simple, that instead of being peripheral in origin the sensation is central and is produced by or at least accompanies the cerebral action which results in movement of the extremity. There is no apparent reason in the nature of things why this may not be true. A motor nervous act in the brain may, for all we know to the contrary, have more than a motor result, it may itself be a sensory stimulus, and the sensations varying with each movement may each become unconsciously associated with a certain given movement, and finally be the means by which we know a movement is being made and its character. But none of this is proven and the means for its proof or disproof are not as yet at our command. For the present, therefore, since there is so much clinical and pathological evidence in favor of the peripheral origin of the muscle-sense, it is safer to hold, tentatively at least, to that view.

Wherever the stimulus which results in the muscle-sense may act, whether it is peripheral or central in hysteria, the disturbance of function is in the highest centers. Hysteria is not a thing pertaining to muscles, tendons, or joints, nor may we assume that there is any primary local trouble, nutritional or mechanical, in the center of coördination in the middle lobe of the cerebellum, but rather higher, probably in the prefrontal lobe. The trouble is more probably in the interpretation of the muscle-sense impulses than in the impulses themselves or the primary receptive center.

MEDICAL PROGRESS.

The Mortality of Harelip, With and Without Operation. FAHRENBACH writes in the *Deut. Zeit. f. Chir.*, vol. 40, p. 81, of 210 cases of harelip, which were operated upon in Göttingen from 1885–95. Rejecting the too minute classification of cases which some authors have made (Stobwasser enumerates thirteen different types), he has arranged his material in four groups, according as the cleft in the lip was single or double, and with or without complications in gums or elsewhere. The different operations performed are accurately described and illustrated, but an especial interest attaches to the mortality. The immediate results were satisfactory. In 166 cases the operation was entirely successful, and of the 210 cases only nine died—about four per cent., but when the cases were followed for a considerable time the author found the mortality to be discouraging. This is especially true of the cases with complications. Thus the cases of single harelip with complications showed a mortality in two weeks of 5.7 per cent., which in three months was doubled, and at the end of one year had risen to thirty per cent. of all the cases of this class. The death-rate for bilateral cases with complications was seventeen per cent. for two weeks, and the same for three months, but was over fifty per cent. at the end of a year. Including all the cases operated upon, the mortality at the end of two weeks was 7.5 per cent., at the end of three months 10.7 per cent., and 32.3 per cent. at the end of a year; and by deaths after one year these figures were raised to 41.8 per cent. So that according to these figures one-third of all children operated upon for harelip fail to live a year, and probably not one-half of them live to grow up. But these figures are to be compared not with those of healthy children, but with those of cases of harelip without operation. Just what the mortality among such deformed children is, is not known, but it must be high. For example: in one hospital (Rose, "On Harelip and Cleft Palate." London, 1891) fourteen per cent. of the patients with harelip died before they could be operated upon. Generally speaking the earlier the patients are operated upon the more of them succumb in the succeeding months, but this the author considers due to the fact that many of the children would not in any case be able to live. He is an advocate of an early operation (sixth to eighth week) for the lip, leaving until later the treatment of any deeper deformity which may be present.

Symptomatic Achillodynia.—In the *Deutsche Zeit. f. Chir.*, vol. xliii, p. 603, WIESINGER describes four cases of tuberculosis of the bursa Achillea upon which he has re-

cently operated. This disease has been given the name of "Achillodynia," though it is important to notice that the lesion is not confined to the bursa underlying the Achilles-tendon, but may involve the posterior part of the calcaneus. A vertical incision along the tendon is not sufficient, and to insure radical treatment the tendon must be divided one-half inch above its insertion, the cut being made obliquely or zigzag-fashion to facilitate its subsequent suture. Then the reflection of the cut ends exposes thoroughly to view the diseased portions.

Spontaneous Healing of Fistulæ in the Female Genital Organs.—BODEN has searched the literature of medicine for records of cases of fistulæ into vagina or uterus which have healed spontaneously. The result of his effort, as given in the *Centralbl. f. Chirurg.*, 1896, No. 38, has an important bearing on the question of operation in such cases, for he was able to collect 235 cases of spontaneous cure, and believes that he might have added to this number had the "Index Medicus" been accessible to him. The average duration of treatment before the fistula closed was three months, though in some of the cases a much longer period elapsed. The fistulæ were situated as follows in 235 cases: 132 vesico-vaginal; 27 vesico-uterine; 3 vesico-enteric: 3 ureteral; 52 recto-vaginal; 3 recto-uterine; 9 entero-vaginal; 6 entero-uterine.

Hysterical Hematemesis.—MATHIEU (*Gaz. des Hôpitaux*, No. 16). In hysterical patients not unfrequently a group of symptoms is observed which may be confounded with genuine hematemesis. In these cases the vomiting of a bloody fluid occurs usually at night after a previous feeling of distress and burning in the region of the epigastrium and esophagus. The quantity of vomited matter is usually from sixty to one hundred grams and looks like raspberry syrup. On standing it becomes darker in color, but never contains blood-clots. Traces of food are seldom found. The attack is but rarely preceded by nausea. The attacks occur monthly in women who show typical hysterical symptoms and also vague dyspeptic symptoms. As a rule, there is distention of the stomach with gas, and a spot susceptible to pain on pressure, a little to the right of the median line, and corresponding with the situation of the hypersensitive pylorus. Sometimes the attack occurs daily for several days or for a longer period, with an intermission of several days between the attacks. If after a few hours the vomited matter is examined, two layers may be observed. The upper layer is transparent and contains no solid particles; the lower layer is more opaque and contains mucous, red corpuscles, from which the color has more or less disappeared, white blood-corpuscles, and epithelial detritus. Saliva is generally present in considerable quantities in the vomited fluid, as is shown by the rapid metamorphosis which starch undergoes when exposed to its action. The source of the blood is doubtful. In several cases examined it could be traced to the detached mucous membrane of the mouth. This swallowed with the saliva most probably gives rise to the characteristic vomit. The source of the hemorrhage may also be in the stomach, though no serious lesions of that organ are generally found.

THERAPEUTIC NOTE.

The Treatment of Gonorrhea with Argonin.—ARTHUR GUTHEIL (*Deut. Med. Woch.*, 1896, No. 35). In the treatment of gonorrhea it is desirable to select a remedy, which, in the first place, destroys the gonococci; secondly, does not aggravate the inflammatory process; thirdly, does not injure the mucous membrane. Experiments with the preparations of zinc, lead, and tannin, have proven the absence of any germicidal properties whatsoever in these medicaments. Corrosive sublimate and potassium permanganate are efficient germicides, but also powerful irritants. Argentamin, a silver salt, recommended by Schäffer, is an efficient antiseptic, but fails to fulfil the second condition, namely, the least possible irritation of the mucous membrane.

The experiments with argentamin induced Röhmann and Liebrecht to furnish a soluble combination of albumin, silver, and an alkali, which, unlike argentamin and other preparations, should contain no free alkali, to the presence of which the corrosive action is due. Casein, which possesses acid properties and forms acid combinations with most bases, was found to be the most suitable substance. By the addition of silver nitrate to a solution of a sodium-preparation of casein and precipitation with alcohol, a soluble combination results. The precipitate thus formed is, after drying, a white powder, argonin (Liebrecht).

It is best to use a fresh preparation (one-half per cent.) and keep it in a dark bottle. Much stronger solutions have failed to produce any irritation. As argonin possesses but feeble astringent qualities it is often necessary to use other medicaments in combination. After the use of argonin, ichthyol has given excellent results.

Seventy cases of gonorrhea were subjected to the argonin-treatment by the author, the presence of gonococci having been first established. Of this number fifteen cases, in which the presence of gonococci was marked, were selected for special observation under the argonin-treatment. In these cases the author determined the exact time at which the gonococci ceased to be present in the discharge, as likewise the time in which the gonorrhea might be considered as entirely cured. After eight or nine days of treatment the gonococci ceased to be visible in the discharge. From this it is not to be understood that the gonorrhea was entirely cured. On the contrary, after the use of argonin twenty-one days on the average were required under the application of astringents, ichthyol especially, before the gonorrhea was completely healed.

In conclusion, the author finds that argonin is not only non-irritative, but also gives rise to no subjective symptoms. As is the case with all medicaments, a case occasionally presents itself showing special idiosyncrasies. To sum up, the author recommends argonin for all cases of gonorrhea that come under the observation of the practitioner. It destroys in a comparatively short time, without giving rise to any irritation, the gonococci. This is already a great advance in the treatment of gonorrhea, as it precludes the supervention of any complications. In confirmation of this fact it may be stated that of the seventy cases only one manifested symptoms of epididymitis.

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SATURDAY, NOVEMBER 14, 1896.

THE WISCONSIN DIPLOMA-MILL.

It is a disgrace to the civilization at the close of the Nineteenth Century that any State of this Union should be so unmindful of the health, the welfare, and the lives of its citizens as to charter institutions and empower them to confer the degree of doctor of medicine on any person without restriction in regard to study, to mental, or moral fitness, or to any other possession, except that of a variable amount of money. Yet such is the state of affairs to which we bear witness to-day. A few weeks ago we called attention, editorially, to a Western diploma-mill, known legally as the Illinois State Health University. We pointed out in detail that, according to its announcements and circulars, the function of this mill is to furnish diplomas to men and women who have neither preliminary education nor the time to attend "Monopoly" medical colleges, but who can scrape together $75 or $100 for the purchase of a diploma which apparently gives equally with the graduate of the most scientific institutions in the land the right to administer professionally to the sick. Since our editorial on the subject we have received letters from various parts of the country, all of them pointing out that the impostor of whom we wrote was but one of a number doing apparently a lucrative business in Chicago. Some of our correspondents have inclosed communications with which they have been favored from the president or the secretary of the Wisconsin Medical College of Milwaukee, the correspondence department however being in Chicago, where all moneys are received and from which the diplomas are mailed. In other words, a Chicago sharper has pulled the wool far down over the eyes of the Wisconsin legislators, and they have granted him a charter of a medical college. His "goods"—beautifully engraved diplomas in the Latin tongue—are made in Milwaukee, and Chicago is his selling-center.

The organizer of this toadstool medical college has elected himself president and his wife secretary. Appreciating the fact that it is usual to have masculine names down as officers, and yet unwilling to have the matter get beyond his own fireside, he gives only the initial letter of his wife's first name and spells out the middle name which carries with it no significance of sex.

One mode of operation of this medical cormorant is to take the Medical and Surgical Directory and ferret out the names of those who are practising medicine under the certification of licensing boards, but without titular accompaniment. These he addresses in the glowing language of Chimmie Fadden, which interpreted reads: "We are selling diplomas at reduced rates, what good reason can you offer for not taking advantage of our bargain-counter?" Another method is to get the addresses of first-year medical students in the cheapest medical colleges, and submit a similar question to them: "Why attend a medical college for four years when the same privileges can be given to you by our college without attendance?" Unfortunately, and with sorrow, be it said, there are dishonest people enough to make this nefarious business pay.

In a State disgraced by such an institution, it becomes the first duty of each physician to see that his legislator is made to realize the fatal mistake of allowing the charter to remain unre-

voked. It is none the less the duty of health-boards to prosecute the holders of all these trade-diplomas.

THE TREATMENT OF BOVINE TUBERCULOSIS IN DENMARK.

DR. B. BANG of Copenhagen in *Deutsche Zeitschrift für Thier-Medizin und vergleichende Pathologie*, vol. xxii, relates some of his observations and deductions based upon 54,000 cases of tuberculin-application. In 1893 the Danish government enacted a law appropriating an annual grant of $13,500 for a period of five years for the extermination of bovine tuberculosis. The fundamental experiments, leading up to this grant, were conducted at a farm at Thurebybille, on the island of Seeland, that had been rented by a company of stock-raisers who were attempting to rear and supply for the general market a good class of milch-cows of the red Danish breed.

He says of Denmark, that while in that country stock-raising and dairying have for years been the chief source of national prosperity, the people have been averse to radical measures for the suppression of "the white plague" of tuberculosis. After considering the various methods employed, particularly those of Massachusetts, which he terms "drastic;" and the proposed French requirements of killing within a year all imported cattle that show a reaction from the tuberculin test—a plan that in his opinion is too rigorous and inclined to work the financial ruin of many cattle-owners—he concluded that Denmark was too poor a country for the destruction of every reacting animal. Accordingly he offered a plan of action that looked to the gradual elimination of the disease by applying the test only to young cattle. Moreover, an inducement was offered to cattle-owners by making the application and supervision of the test free to them, provided they would guarantee to separate the healthy animals from those which showed reaction. The limitation of the test to young cattle was made for the following additional reasons: first, because it was seen that the raising of new healthy herds was most important; second, because at that time tuberculin was very dear and the quantity to be consumed was of no slight economic importance.

The rearing of calves born from cows that reacted to the tuberculin-test, but otherwise apparently healthy, was deemed advisable because the large majority of such calves were found to be free from the disease. The precaution, however, was taken to immediately remove these calves from their mothers and rear them on sterilized milk.

Tuberculosis-investigations have made it highly probable that the coöperative dairies often contribute to the spread of the disease. The patrons receive in return for their milk skimmed milk for feeding calves and swine. It is understood, of course, that they do not receive their own milk, but a part of the mixed milk. In case the milk of another patron comes from a tuberculous cow, the danger is at hand that in this manner the disease may be communicated to a healthy herd. That this actually happens is proved by the common observation that all grown cattle of a herd may be found healthy, while various calves and heifers react. Fortunately skim-milk is almost everywhere sterilized before being distributed, but it is frequently not heated to a sufficiently high temperature.

From the observations described it must be apparent that infected milk has much to do with the spread of tuberculosis among young animals. By cooking or warming the milk at a temperature of 185° Fahrenheit, sure protection may be easily obtained. The calf, however, can scarcely dispense with the colostrum during the first day of its life, but from the second day cooked milk is easily digested. At Thurebybille all calves were fed very successfully with cooked milk from the second day on. The colostrum was warmed to 65° C. (149° F.). This temperature does not, indeed, kill tubercle bacilli; but weakens somewhat their virulence.

Collected evidence has abundantly proved that by following the simple rule of feeding calves only with cooked or highly pasteurized milk gives the very best results. On farms where this method was used and careful sequestration was practised, all calves were healthy, even where tuberculosis had widely spread among the grown animals.

In the case of swine which are largely fed with skimmed milk, whey, or buttermilk, the "feeding tuberculosis" plays an important part. Tubercu-

losis in horses is not rare in Denmark, doubtless because of the extended use of milk in fattening young horses intended for the market. This usually appears, in "feeding tuberculosis," in the form of intestinal ulcers, and very large deposits in the mesenteric glands, sometimes also in the peri-pharyngeal glands, and accompanied by secondary deposits in the lungs.

THE DIAGNOSIS OF TYPHOID FROM BLOOD-SERUM.

The scientific investigations of Pfeiffer upon the specific bactericidal substances developed in the blood of animals, immunized by injections of typhoid bacilli, have given rise to unexpected practical results in furnishing a means of diagnosis which bids fair to be as reliable and practical as the examinations now made in cases of suspected diphtheria and tuberculosis.

Widal and others in France discovered that these specific substances were present regularly in the blood of typhoid patients as early as the seventh day, and sometimes earlier. They found that if to a drop of blood-serum, or to a drop of water containing a solution of dried blood from a typhoid patient, a moderate number of typhoid bacilli were added, a very peculiar reaction occurred, which was readily observed under the microscope. The typhoid bacilli were found to gather themselves in clumps, and thus entangled to cease their former active movements. As a rule this took place within five minutes, and always within a few hours. With no other blood than that from those who have suffered from, or are suffering from, typhoid fever will the typhoid bacilli give this reaction.

Johnston of Montreal has simplified the technique so that any one can collect the blood for examination, and if he is familiar with simple bacteriological work, can himself observe the reaction. The blood is obtained upon a clear glass slide from a needle-prick of the ear or finger of the suspected case. It is allowed to dry, and thus sent or carried to the laboratory. It will give this reaction even after having been kept for several days.

At the laboratory a loop of a bouillon-culture of absolutely reliable typhoid bacilli is placed upon a clean cover-glass, and to this is added a large loopful of a watery solution of the dried blood-specimen. The cover-glass is now inverted over the concavity of a hollow slide and sealed at the edges with melted vaseline. Under the microscope, with a high-power dry-lens, or with a one-twelfth oil-immersion, the rapid clumping of the bacilli in the hanging drop can be observed.

At the New York Health Department laboratory there has been examined in this way the blood of thirty-four cases of typhoid fever. In thirty-three of these characteristic clumping of the bacilli occurred either immediately or within a few hours. In one, a case already convalescent forty days, no reaction appeared. The late date at which the blood was taken, or a possible error in diagnosis, may account for the failure.

In fourteen cases of other diseases this clumping did not occur at all, or to such a slight degree as to be easily distinguishable from the typhoid cases. Some of the doubtful and mild cases gave as good reactions as the more severe cases.

This is a confirmation, therefore, of the claims of Widal, Johnston, and others, that it is possible to make a correct, positive diagnosis in the great majority of cases, and perhaps, with greater experience, in all, by the reaction which takes place between the typhoid bacilli and the blood of the suspected case. If there is no specific reaction in a case sick over a week, the diagnosis of typhoid fever must be excluded. If a marked reaction occur, then, unless the patient had had an attack of typhoid fever within at farthest ten years, the case is typhoid fever. The few in which a slight reaction only occurs, must be left doubtful until later examinations clear up the case. The Health Department of New York City is so certain of the practical value of these examinations in doubtful cases that it has already arranged methods for collecting and reporting, without charge, upon blood-smears from suspected cases, as described in the announcement which appears in this issue of the Medical News.

Wm. H. Park, M.D.

ECHOES AND NEWS.

Icelandic Lepers.—Iceland, with a population of 75,000, has 400 lepers, but no attempt has been made to alleviate their condition or prevent the spread of the disease.

The Rush Monument.—One hundred and fifty-nine dollars has been subscribed to the Rush Monument Fund since April 17. The sum now on hand is $3886.39.

Distress in Ireland.—The failure of crops, owing to persistent rains in Ireland during the past season, brings the inhabitants face to face with famine and its constant companions, disease and pestilence.

Maternal Impressions.—A hen in Vermont, after looking at a three-pound potato grown by a neighbor of her owner, went to the barn and laid an egg measuring 8½ by 6½ inches.—*Medical Record.*

The Commercial Travelers' Home.—A fair will be held in Madison Square Garden, New York, December 15–29, to raise $150,000 with which to complete the National Commercial Travelers' Home at Binghamton, N. Y.

Pure-beer Investigation.—A commission appointed by the British Treasury is making inquiry as to the purity of materials used in the manufacture of English beer. The proceedings of this commission up to the present time are held in contempt by *Food and Sanitation.*

Improvements at Bellevue Hospital.—Plans were filed at the Department of Buildings of New York City, last week, for additional buildings to be erected in connection with Bellevue Hospital, at an estimated cost of $130,000. A water-tower is also to be built west of the City Hospital on Blackwell's Island.

Dogs to be Banished.—Street-cleaning Commissioner Waring last winter directed the attention of the Board of Health of New York to the insanitary, if not dangerous, habit of permitting dogs to frequent the streets and sidewalks. The advantages of compelling their owners to confine them to private premises are now under the consideration of the sanitary committee.

Promotions in the Medical Faculty of Johns Hopkins University.—The trustees of Johns Hopkins University at their last monthly meeting advanced Dr. Lewellyn F. Barkar to Associate Professor of Anatomy, and Dr. William S. Thayer to Associate Professor in Medicine. Both gentlemen had amply demonstrated their fitness for such honors while serving as assistants in these departments.

The Japanese Intestine.—Finding rice was better utilized by the Jap than the European, it occurred to Dr. Scheube of Kioto that some racial difference in the intestinal anatomy might supply the explanation. Professor Taguchi, after measuring the intestines of twenty-five cadavers at Tokio, now asserts that, after making proper deductions for variations in stature, the Japanese intestine is one-half longer than that of the European.

An Altruistic Queen.—Queen Amelie of Portugal interests herself personally and effectually in improving the hygienic condition of Lisbon and in providing medical and surgical attendance for the poor. To her efforts was due the early introduction into Portugal of the serum-treatment of diphtheria. She founded, and with the aid of her Court ladies maintains, an institution called the Dispensaria de Sua Majestade la Rainha, where sick children receive care and treatment under conditions as favorable as exist in the best private hospitals.

Bacteriological Aspect of the Plague in Bombay.—Drs. Childe and Surveyor are reported to have found the bacillus described by Kitasato in the urine, the sputum, the serum from the bubo, and in the blood of a plague-stricken patient in Bombay, and also in the organs of rats and mice that are dying in large numbers throughout a certain district. Inoculations from the blood and organs of persons who have died of the plague, or from pure cultures, invariably proved fatal to healthy rats in about sixty hours. The plague is said to be spreading in India.

The New York Academy of Medicine.—The Academy is about to celebrate the semi-centennial anniversary of its organization. Three separate committees have been appointed to take the matter in charge and make definite arrangements. The plan of the celebration embraces a program of public exercises in either Carnegie Hall or the Metropolitan Opera House. In addition to appropriate remarks of representative Fellows of the Academy, an address will be given by some distinguished citizen. After these exercises a reception will be held in the Academy itself, where refreshments will be served.

"Suggestionized" Witnesses.—A man was recently tried at Munich, Bavaria, for the murder of three women. Witnesses were called to prove that the prisoner had attempted to enter their houses for purposes of robbery. Counsel for the defendant asked if it were not the case that in sensational affairs which excited public feeling very much, individuals, even of normal dispositions, might "suggestionize" themselves with regard to events they believed they had seen, and whether, through unusual association of ideas, mental images might not become confused. The expert medical opinion given did not uphold this defence.

The Anti-diphtheritic Property of Human Milk. — Drs. Schmidt and Pflanz in the *Klinische Wochenschrift* report the results of experiments made to determine the anti-diphtheritic properties of human milk. The antitoxins of the milk pass into the digestive tract of the suckling child and thence into its circulation, without undergoing any change. It is generally recognized that suckling children rarely suffer from diphtheria. The blood-serum from the placenta after the severance of the cord was also examined for purposes of comparison. The antitoxins contained in the blood of a lying-in woman are less in quantity than those in the milk.

The International Medical Congress.—"We are asked to state that the organizers of the surgical section of the forthcoming International Medical Congress at Moscow propose to collect statistics of the administration of anesthetics in all countries during 1896. They will therefore be glad to receive information from any member of the profession in a position to give it, on the following points: (1) Number of administrations from January 1, 1896, to January 1, 1897; (2) the anesthetic used; (3) number of

deaths. Replies should be sent not later than July 1, 1897, to the secretary of the surgical Section, Dr. F. Rein, Maison Schischkov, Malaja Dmitrovka, Moscow, Russia." —*Brit. Med. Journ.*

A Disclaimer.—Dr. J. McFadden Gaston is justly indignant that his name should have been associated with an article headed: "Making a Trap-door in a Human Being," which appeared in a recent issue of one of New York's unmentionable Sunday newspapers. The garbled text and figure were appropriated from a medical journal, to which his paper was contributed. No such feelings, however, seem to ruffle the placid composure of a prominent editor of a leading medical journal who figured conspicuously in the last Sunday issue of the same newspaper. Possibly he has fallen a victim to the same methods that were practised upon Dr. Gaston and in his helpless position deserves equal sympathy.

Roosevelt Hospital Alumni.—A reunion and reorganization of the Alumni of the Hospital into an active body, for scientific work and social intercourse, was held Monday night, November 2d, in the Administration Parlors of the Roosevelt Hospital. Nearly all the old graduates from the various divisions were either present or sent letters of regret, the most notable absentee being Prof. Geo. L. Peabody. Officers to serve a year were elected: President, Dr. E. B. Cragin; vice-president, Dr. F. J. Brockway; secretary, Dr. H. C. Hatton; treasurer, Dr. E. P. Mallett. Dr. Chas. McBurney was unanimously elected an honorary member, and at his invitation a most elaborate collation was served by the Metropolitan Club in the various anesthetizing-rooms and corridors of the famous Syms operating-theater.

Popular Science.—A correspondent of the *Lancet*, who conducted a small Röntgen-ray gallery at a bazaar, encountered many gems of unconscious humor, of which the subjoined are examples: An elderly gentleman of prosperous appearance objected that the show was not "up to date," as he had "read somewhere in a newspaper that now you can see the liver palpitating and the heart circulating." A young and anxious mother asked to see if her little boy had really swallowed a threepenny-bit, as he was uncertain himself. She had read in the papers that a great doctor, Sir Something Blister, in a speech in a large meeting in Liverpool, a little while ago, said that a halfpenny had been seen in a boy's "sarcophagus!" A girl of the domestic-servant class asked the curator in confidence to "look through her young man unbeknown to him, while he looked at the picture, to see if he was quite healthy in his internals."

Changes in the Pupil in the Insane.—At the recent meeting of German alienists at Heidelberg, Dr. Soemerling read a paper with the above title. He attaches little importance to a difference in size of the pupils. Of all conditions of the pupil in the insane, the loss of reaction to light is of the utmost importance. In 3010 cases of progressive paralysis, it was found to be present in sixty-eight per cent. The sudden and quick dilatation of the pupils is sometimes present in general paralysis, but this occurs also in the healthy. Hippus is rare in paralysis. Except in general paralysis, the loss of light-reflex in the pupil is uncommon. Among 9160 insane the symptom was present in 1639 cases, and of these 1524, or ninety-two per cent., were cases of general paralysis. In syphilis, also, this condition of the pupil is sometimes present without evidence of any other morbid condition. Its occurrence after injuries to the head alone is very doubtful, and it probably does not occur in simple and uncomplicated hysteria. If the loss of light-reflex is not a precursor of tabes dorsalis or general paralysis, it at least indicates a profound disturbance of the nervous system, and it may be present long before any other morbid phenomenon manifests itself.

Obituary.—Dr. Francis H. Rankin died at Newport, R. I., November 9th. Dr. Rankin was born in Fishkill-on-the-Hudson, in 1845. He was graduated from the New York University in 1862. He was acting assistant surgeon in the Prussian army during the Franco-Prussian war. He commenced the practice of medicine in New York in 1871. He was connected with the New York Hospital for Diseases of the Nervous System, the Manhattan Eye and Ear Hospital, the Demilt, Children's and Northeastern dispensaries and other institutions. In the summer of 1876 he went to Newport.—Dr. Henry A. Mott died in New York, November 8th. Dr. Mott was born at Clifton, Staten Island, forty-four years ago. He entered Columbia College, taking a course in the School of Mines. After receiving his degree of mining engineer in 1873, he took up the study of technical chemistry. In 1881 he was made Professor of Chemistry in the New York Medical College and Hospital for Women. He was employed for three years by the Government as the examiner of the food purchased by the Indian Department. He was the chemist of the New York Medico-Legal Society, and belonged to many American scientific societies. He was the author of several scientific works.

CORRESPONDENCE.

"THE BUSINESS END OF IT."

To the Editor of THE MEDICAL NEWS:

DEAR SIR.—I have just finished reading the article in your issue for October 24th, with the title which heads this letter. I write to offer my hearty congratulations, and to say that the author strikes a key-note which ought to ring through our profession and accomplish much good. I could only differ in the matter of the length of interval between bills, upon which point I am even more radical. I send mine monthly.

When I began practice fifteen years ago I sent out bills semi-annually. In time I saw the folly of this, a method inherited from my grandfather, an old-time physician, and graduated into presenting them four times a year: December 1st, March 1st, June 1st, and September 1st. This was an improvement—a step in the right direction. And for those who prefer the ninety-day interval, the months I specify are better, perhaps, than others. If the

doctor's bill is received amid the swarm sent into each household upon January 1st, it is snowed under, and is fairly certain of neglect; whereas, on December 1st, a month earlier, and before Christmas expenses, matters are otherwise. Again, the date June 1st is preferable to July 1st, because by the latter time the paterfamilias is probably already paying heavy hotel bills for his family's summer outing; and a bill so feebly urged as the doctor's can well be placed on file until the autumn—or later. One is reminded of the deacon of accumulative instincts, who, upon being reproached with his systematic neglect of the contribution-plate, explained that the Lord did not press him so hard as he did his other creditors.

After a few years' further experience the writer concluded to try the plan of rendering accounts, upon strict business principles, on the first day of every month, and of having engraved upon his bill-heads: "Bills presented monthly"—by way of indicating that nothing invidious is to be inferred by the patient in any instance. In no case, as yet, have I induced death from heart-failure at the shock of finding the physician to be also a man of business. Moreover, it is unquestionably easier for patients to pay, and for the doctor to collect $10 twelve times a year than $120 once a year. By this plan, and with ordinary prudence, I do not have above five per cent. of bad debts annually—which is a remarkable low percentage for a physician.

Most doctors are their own bookkeepers. As a class they do not earn their salary as such, and should discharge themselves. I fear that Dr. Miles' wise essay will fail of accomplishing so much as otherwise it may, unless this feature of the matter shall be corrected. The tired, overworked doctor will always postpone until that more convenient time which so seldom comes, this particularly unpleasant duty. I firmly believe that it will pay all practitioners, except those just beginning, and with small practices, to hire an accountant by the year; turning over to him the pocket-daybook at the end of each month; and giving him a schedule of prices for certain work, as a general guide. The bills thus prepared are to be examined in review, just before mailing, by the doctor, in the accountant's presence, and if desired altered from the schedule.

This naturally brings up the question of our fees—which need agitation if ever a topic did. Even the best brains of our profession are not paid as they ought to be, as, for example, eminent lawyers are. The writer regards such men as *invariably underpaid*. If by some simple suggestion—but born of genius wedded to experience—a brain is saved by the neurologist from insanity, a mind that otherwise must have entered oblivion, then a fee of a hundred thousand dollars, in the case of a millionaire, would be small indeed for that work. The specialist would still be underpaid, would still deserve our commiseration; but not so much so as usual. In most such instances that brain-specialist is lucky if he adds a twenty-dollar fee to his slender bank-account. And were he instead to charge a tithe of the first-named sum, the man of wealth would use his restored mentality in devising lurid invectives to fit this particularly atrocious case. On the other hand, a lawyer who should win some transcontinental railway-suit for this same millionaire would name a fee of five figures with calmness, and it would be paid as a matter of course, and without unseemly wrath. Who shall say that this picture is overdrawn?

I have small patience when I hear, as I have repeatedly done, the argument used that we should charge all people alike, without regard to their financial condition; that if we charge Mr. Smith fifty dollars for setting a broken bone, we have no right to charge Mr. Jones five hundred dollars for the same thing. Still less do I rejoice and give thanks when the speaker is a doctor (there actually are such) who maintains that his brother physician—in the instance of a given wealthy patient whom he has cured—has "overcharged."

Pardon a slight divagation. Once upon a time the Emperor William I. of Germany, while walking through a market, priced the eggs offered by a certain old woman. Startled at the sum she named per dozen, he exclaimed: "Can it be that eggs are indeed so high?" To whom returned the *handelsfrau*: "Nay, Your Majesty, eggs are plentiful enough. It is kings who are scarce." Now, all can see the gross injustice herein attempted upon an inoffensive and defenseless monarch. But the fable, as I maintain, does not apply to our case. We are not selling our brains over a counter at so much per thought, or per dozen thoughts. The Smith-Jones argument above-mentioned comes with ill grace when directed against a profession which serves the poor without money and without price, to such an extent that one-fourth of the population of this great city of New York get their medical attendance free! This is literally true. Those who can pay should, as I believe, do so somewhat in proportion to the extent of their means; at least for operative and for consultative work involving unusual experience and ability.

One further point, often neglected: The family doctor can better judge than the expert, whom he calls in consultation, as to the patient's fortune, and, therefore, as to what would constitute a fair fee in a given case. It is my custom to submit my proposed charge first to the doctor, and be guided by his decision in this matter. Should the operator offend the patient by the size of his bill, the doctor who has recommended him may suffer a vicarious punishment from the subject, subsequently. Consequently the arrangement just named seems but courteous to the family medical attendant.

Once more let me convey hereby to Dr. Miles my compliments, congratulations, and personal thanks for the good work he is doing.

Respectfully,

ROBERT H. M. DAWBARN.

105 WEST SEVENTY-FOURTH STREET,
New York, October 31, 1896.

THE DOSAGE OF NITROGLYCERIN.

To the Editor of THE MEDICAL NEWS.

In reference to the paper entitled "The Dosage of Nitroglycerin," which appears in the current issue of the MEDICAL NEWS, I beg to call the writer's attention to previous communications by myself upon this subject.

These appeared in the *Philadelphia Polyclinic* of December, 1888, and *Therapeutic Gazette*, September, 1893. In these I record a case of my own, taking twenty grains of nitroglycerin daily without more decided effect on the blood-pressure than had originally been produced by an initial dose of one one-hundredth of a grain six months previously. This case, although quoted by other writers, has evidently escaped the attention of Dr. Hare and Dr. Whitaker. In my paper in the *Therapeutic Gazette* on "Tolerance to Nitroglycerin Easily Acquired," I refer especially to the great difficulty attending its administration in cases in which it is most indicated—those of unduly and obstinately raised blood-pressure—in order to obtain a maximum effect with minimum dosage. Such doses as Dr. Armstrong records, as in the case of my own, are highly impracticable and dangerous, not through effect upon the blood-pressure, but through the influence of the drug upon the blood itself. In cases of such extraordinary tolerance as Dr. Armstrong records, other modes of influencing high tension, as remarked in the second communication referred to above, must be resorted to. It is well known that nitroglycerin, in common with the nitrites, in full doses, partially or completely, arrests the oxygen carrying power of the red blood-corpuscles, producing a condition of methemoglobin. This effect is of course brought about irrespective of action upon blood-pressure, and is a condition to the ill effects of which tolerance cannot be acquired. Curiously, little attention is given by therapists to this action of the drug. It is not considered that the drug cannot be given immoderately, even though it does not unduly flush the face or cause headache. In my case, in which twenty grains of nitroglycerin were taken daily, a most decided dusky hue of skin was produced by much less doses, indicating the effects upon the oxygen-carriers of the blood. These effects cannot but be harmful, and when the drug is long continued may result in great injury.

Very respectfully yours,

D. D. STEWART.

108 SOUTH SEVENTEENTH ST., PHILADELPHIA,
October 31, 1896.

THE USE OF SURNAMES IN MEDICAL LITERATURE.

To the Editor of THE MEDICAL NEWS.

DEAR SIR: I was very much interested in Dr. James Tyson's communication in your journal of November 7, 1896, on "the use of surnames only in citing authorities in medical literature."

As an author on historical as well as medical subjects, I beg leave to suggest that not only ought Christian names to be mentioned, but the place where, and the time when, they lived be also added. It would cost the author a little more trouble, as Dr. Tyson aptly remarks, but an unselfish author must expect to take the trouble of saving the inquiring student unnecessary labor of finding out what he himself should have stated at the time.

Yours truly,

R. C. M. PAGE, M.D.

NEW YORK, Nov. 9, 1896.

ANNOUNCEMENT.

ARRANGEMENT OF THE NEW YORK BOARD OF HEALTH FOR THE DIAGNOSIS OF TYPHOID.

To the HON. CHARLES G. WILSON, President of the Board of Health.

DEAR SIR: I desire to direct the attention of the Board to a new laboratory-method for the diagnosis of typhoid fever which, judging from the data available at the present time, promises to be of very considerable practical value in the diagnosis of early or ill-defined cases of this disease.

The investigations of Pfeiffer and Widal have shown that the blood of persons suffering from typhoid fever, when mixed with active cultures of the typhoid bacillus, has the power of arresting the active movement of these organisms, and of producing peculiar and characteristic clumping of the bacilli. It has been shown that this reaction occurs frequently very early in the course of the disease; that it is found throughout its course, during convalescence, and often for a considerable period after complete recovery. It does not occur with other organisms than the typhoid bacillus, and it does not occur with cultures of the typhoid bacillus when the blood of persons suffering with other diseases is employed. As has been shown by Widal and Johnson, this reaction occurs as well with specimens of dried blood as with fresh blood, and thus can be employed practically for the diagnosis of this disease in municipal laboratories. Observations on this matter which have been in progress in the laboratories of this department for some time past, have thus far confirmed the conclusions of previous investigators.

In order that more numerous data shall be at the command of this department, and that physicians of New York may at the earliest moment have facilities for testing the reliability of the observations thus far made, I should respectfully recommend that arrangements be made to place facilities for such examination at the command of all physicians in this city, it being distinctly understood that this action of the department is for the purpose of gaining information on this important subject, and at the same time of placing at the command of physicians opportunities for observing the results. If the data already obtained are entirely confirmed by subsequent observations, this method will undoubtedly prove of great service in the diagnosis of early and obscure cases of typhoid fever.

Should this action be determined upon, circulars of information as to the method of collecting blood and slides for this purpose may be left at the depots already established for the collection of diphtheria-culture tubes and the distribution of diphtheria-antitoxin.

Respectfully submitted,

(Signed) HERMANN M. BIGGS,
Pathologist, and Director of the Bacteriological Laboratories.

NEW YORK, November 6, 1896.

The following resolution was adopted by the Board of

Health of the Health Department at a meeting held November 6, 1896:

RESOLVED, That the recommendations of the Director of the Bacteriological Laboratories of this Department contained in the communication dated November 6th, be and are hereby approved, and that he is hereby authorized to place facilities at the command of physicians of this city for the diagnosis of cases of typhoid fever, in accordance with the method prescribed in said communication.

NOTICE TO PHYSICIANS.

Circulars of information regarding the method employed, and slides for collection of blood, may now be obtained at the various druggists where diphtheria-culture tubes are kept. Physicians desiring to make use of this method in the diagnosis of early or obscure cases of typhoid fever can procure these and, after collection of blood as described, may leave the slides with the data relating to the case at the various depots. They will be collected each day, examined the following day, and the report of the result forwarded to the physician.

(Signed) HERMANN M. BIGGS,
Pathologist, and Director of the Bacteriological Laboratories.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE—SECTION ON GENERAL MEDICINE.

Stated Meeting October 20, 1896.

REYNOLD W. WILCOX, M.D., Chairman.

W. GILMAN THOMPSON, M.D., read a paper on

EXPERIENCE WITH THE TREATMENT OF ENTERIC FEVER BY COLD TUB-BATHS.

In describing the Brand method of treating typhoid fever by tub-baths, the author said that the baths were given at an average temperature of 70° F., and an average duration of fifteen minutes, and that they were indicated as often as the temperature reached 102.5° F. Of course, due regard should be had to proper hours for sleep and rest, and ordinarily the baths were not to be repeated more frequently than once in three hours. He emphasized particularly the very great importance of having the patient properly rubbed by two attendants, from the very commencement of the bath. The patient's chief complaint is usually the shivering produced by the baths, but this could be largely controlled by administering half an ounce of whisky, half an hour before the bath, and by due attention to the rubbing of the body-surface. It is not uncommon to find that the shivering is much less severe after the first few baths, but should it be especially troublesome, the bath should be given a little higher temperature, and the patient given hot drinks freely. These baths were certainly not pleasant to the person receiving them, but the patient soon recognized their beneficial effect on the circulation, and particularly their tonic effect on the depressed nervous system. This, indeed, was their important function. Ordinarily from fifteen to twenty-five baths would be required in a case of typhoid fever. The average reduction of temperature effected by one of these baths is between two and three degrees Fahrenheit. Osler had recently reported that in the Johns Hopkins Hospital the death-rate had been 7.1 per cent., and Wilson of Philadelphia had reported a death-rate from the same method of 7.25 per cent. It had been objected that this treatment was not only barbarous, but tended to increase the liability to intestinal hemorrhage, but the latter was not substantiated by the facts. He thought it was safe to resume the baths when the patient had had one normal stool after an attack of intestinal hemorrhage. The author's conclusions were: (1) Cold-tub bathing does not ordinarily shorten the duration of enteric fever; (2) it does not prevent the recurrence of relapses; (3) it does not prevent the occurrence of many of the ordinary complications of the disease, most of which are less severe than by other treatment; (4) it does not preclude the simultaneous use of any other recognized method of treatment; (5) it may be safely employed in all cases except those actually having at the time severe intestinal hemorrhage or pneumonia; (6) it is rational because of its action in stimulating the nervous system, and because it regulates the metabolic processes of the body, and increases the vital resistance; and (7) when begun in the first week there is almost a certain prospect of the disease running a much milder course, and in the severer cases the mortality is reduced approximately one-half.

MORRIS MANGES, M.D., presented a paper on

THE ANTITOXIC AND THE ANTISEPTIC METHODS IN THE TREATMENT OF TYPHOID FEVER.

(See Page 541.)

DISCUSSION.

DR. FRANCIS DELAFIELD opened the discussion with the statement that in his opinion the tub-bath method of treatment was the best at present known, and that it should be begun early, without waiting for any hyperpyrexia. As this method was not capable of application in all cases, he had experimented with other plans of treatment. He had recently tried the Woodbridge method of treatment in thirty cases. This consists in giving small and frequently repeated doses of calomel, podophyllin, eucalyptol, and carbonate of creosote. He had soon found that the calomel was causing many sore mouths, and had accordingly substituted in some cases the sulphate of magnesium for the calomel. There had been no relapses in this series of cases, and of the four deaths that had occurred, three were of patients who had been under treatment eleven days or less. It would seem, therefore, that this treatment somewhat shortened the duration of the disease in the mild cases, although showing no control over the severer ones.

DR. A. BRAYTON BALL said that the reason the first trials of the Brand method had been unsatisfactory was because the proper rubbing of the body-surface had been omitted. One very important effect of these baths was to cause gasping or forced inspirations. There was no need to discontinue the baths during menstruation, for the total immersion of the body in this way was very different from placing the feet in cold water. It was a mistake to sup-

pose that the object of these baths was to reduce the body-temperature. The more he saw of this treatment the better he was pleased with it.

DR. W. P. NORTHRUP said that he had started in to make a very careful trial of Fraenkel's injection-treatment, but, with the exception of the first case, the patients had done so badly that he had been forced to discontinue it and resort to the baths in order to save their lives. He was thoroughly convinced of the great value of the Brand method, but wished the treatment could be modified in some way so as to keep the extremities from becoming so cold.

DR. LOUIS WALDSTEIN said that he had often pondered over the question of the possibility of aborting typhoid fever. Although our present knowledge was opposed to this view, such well-known clinicians as Wunderlich and Friedrich had long insisted that this could be done, and the absence of means of making a positive diagnosis at a very early stage prevented us from answering the question absolutely in the negative. All physicians were familiar with a class of cases not infrequently met with in private practice, called "continued fevers," which yielded easily and quickly to calomel and a liquid diet. Recently he had seen such a case relapse after two or three weeks, and the second illness pursued the typical course of typhoid fever.

DR. RICHARD C. NEWTON of Montclair, N. J., said that years ago he had observed in the army a number of cases of what was called "the mountain-fever," and he had not been a little surprised to find at autopsy on one of these patients the typical lesions of typhoid fever. He felt quite sure that he had been able occasionally to abort typhoid fever by the administration of calomel.

DR. A. PALMER DUDLEY said that it did not seem to him that the Brand method was rational, as, aside from its being cruel, it produced considerable shock, and failed to accomplish a most important part of the rational management of this disease, *viz.*: the elimination of the poison. Death in typhoid fever was usually due to heart-failure, and, in his opinion, these tub-baths were well calculated to cause the heart to fail. To his mind, it was more rational to administer to a typhoid-fever patient citrate of magnesia, and in this way wash out the intestine, and at the same time cause the elimination of the poison by exciting osmosis. Enemata certainly could not reach beyond the ileo-cecal valve. In addition to the citrate of magnesia the patient should be given quinin and nux vomica to combat the tendency to heart-failure, and the diet should consist entirely of milk.

DR. S. BARUCH said that the Brand treatment was intended so to increase the vital resistance that the patient should be able to resist the toxemia of the disease. Brand insisted that this treatment should be begun before the fifth day of the disease, but that would be obviously impossible in hospital-practice. In private practice it was his own custom to begin the baths just as soon as he had a suspicion of the existence of typhoid fever, and in this way he had learned that if there was a very decided fall in the body-temperature after the bath, the case was almost certainly not one of typhoid fever. In reply to Dr. Dudley's assertion that the treatment was not eliminative, he would say that the treatment had been found over and over again to increase the uro-toxic coefficient, and also to cause a marked diuresis. If properly carried out it not only did not tend to produce heart-failure, but, on the contrary, was the best remedy to combat heart-failure of which he had knowledge. It was a uniform experience that after each bath the pulse would become decidedly slower and stronger. In country practice, where the Brand method could not be carried out in all its details, a fair substitute might be found in the plan of dashing on the patient some water at a temperature of 60° F.

DR. THOMPSON, in closing, said that he believed that many of the so-called intestinal antiseptics acted beneficially as antifermentatives. If so, they fulfilled an important function, for the prevention of tympanites and distension of the bowels meant less danger of the perforation of typhoid ulcers.

DR. MANGES, in closing the discussion, said that where patients had shown much coldness of the extremities under the tub-bathing, he had found it useful to administer $\frac{1}{400}$ of a grain of nitroglycerin before the bath. Those who had examined the blood before and after these baths, had been struck by the increase of the mononuclear leucocytes after the bath, showing that the treatment was truly eliminative.

DR. MANGES then exhibited the phonendoscope of Bianchi—a kind of microphone intended to take the place of the stethoscope. It consists of a small chamber, closed at the bottom by a diaphram of ferrotype-plate, and having soft rubber ear-tubes, leading from the cover of this box or chamber. It may be used, either by placing the diaphragm directly against the part to be auscultated, or where it is desired to localize the sounds more accurately, a metal stem, three or four inches long, is attached to the diaphragm. This is the best arrangement of the apparatus for use in auscultatory percussion, or where it is desired to perform auscultation through the clothes. Dr. Manges said that the inventor claimed that with this phonendoscope it was possible to detect the muscle-sounds and the normal sounds in the viscera, but this claim he has not been able to substantiate. For auscultation of the heart and lungs, he did not think it possessed much advantage over the stethoscope, but it was certainly very useful in abdominal auscultation.

NEW YORK ACADEMY OF MEDICINE.

General Meeting November 5, 1896.

JOSEPH D. BRYANT, M.D., President.

Surgeon-General GEORGE M. STERNBERG of Washington, D.C., delivered the Wesley M. Carpenter lecture on

THE ETIOLOGY AND CLASSIFICATION OF INFECTIOUS DISEASES.

He defined an infectious disease as one which resulted from the introduction of some disease-producing agent. This agent must be a living organism, either vegetable or animal, in order that the disease may be communicated from one individual to another. Suppuration, he said, was always due to the action of living organisms, except

possibly to the few rare instances in which it resulted from the action of chemical agents. Mechanical irritation was a potent factor, as it often made the tissues susceptible to infection, but it was not in itself capable of producing suppuration. In this connection he recalled some experiments, performed by himself in 1884, with a view of determining the tolerance of the peritoneum to mechanical irritation. The results had surprised him. Fine pulverized, sterilized glass was introduced into the peritoneal cavity of a rabbit, with the result that it only gave rise to a conservative inflammation by which the foreign bodies were encapsulated, and prevented from doing further injury. But if the foreign body carried in with it certain bacteria, the result would be suppuration. In traumatic infection the pathogenic organisms might be derived from an external source, from the surface of the body, or come from within the individual. Auto-infection is the rule in croupous pneumonia and meningitis, and depressing influences of all kinds increase greatly the tendency to infection. It was for this reason that epidemics were observed in connection with famine, and that alcoholic subjects became such an easy prey to pneumonia. In diseases like pneumonia, diphtheria, and cholera for example, there was apparently a local exciting cause, such as a mechanical irritation. Thus, he believed that the influenza-bacillus might exist in the respiratory passages of healthy persons, and not give rise to any symptoms until some depressing factor, as exposure to cold, is introduced. The seasonal prevalence of certain of the infectious diseases was to be explained by the existence at certain times of conditions specially favorable to the growth and multiplication of the specific organism. Again, diseases like measles, scarlet fever, and influenza, spread most rapidly at those seasons of the year when persons are brought into contact in close rooms. It was rather remarkable that although the specific agent of influenza had been discovered as long ago as 1892, but little attention had been paid to this fact, and no precautions were taken to prevent the communication of this disease from one individual to another. In his opinion the bronchial secretions of a person suffering from the influenza were as infectious as were those from an individual having diphtheria.

Some of the specific organisms are capable of being disseminated through the air, but in view of the fact that it had been proved that the cholera-spirillum is destroyed easily by desiccation and sunlight, the view that this disease could be spread by infection of the atmosphere was certainly no longer tenable. On the other hand, it was well known that the malarial parasite could be wafted through the air to a considerable distance, and that the largest number of cases of malaria in a given region would occur close to a marsh, or in such position as to be affected by the winds most often coming from the direction of this swamp. While it was possible that malaria might be due in exceptional instances to the infection of drinking-water, the evidence in support of this theory of its propagation did not seem to be very strong. In the army, the surgeons frequently diagnosticated many cases as malaria, which subsequent *post-mortem* investigation would prove to be in reality cases of very mild typhoid fever. We should be very skeptical about accepting the diagnosis of malaria in any case which fails to exhibit the specific controlling action of quinin. From the fact that malaria is less prevalent in marshy regions when the vegetation of the marsh is completely submerged, he had been led to think that it was not improbable that the malarial plasmodium found its external habitat on the stems and leaves of water-plants, rather than in the water itself. It was quite remarkable that the Washington barracks and Fort Myer, across the river from Washington, D. C., had the largest proportion of cases of malaria of any posts in the United States Army. There was a regular epidemic of malaria every autumn at these posts. At the Washington barracks the water used was from the city water-supply, while that used at Fort Myer was partly from wells and partly from the Potomac.

The occurrence of yellow fever as an epidemic would seem to require the existence of certain sanitary local conditions, and a sufficiently high temperature to allow of the ready development of the specific microörganism. What this organism is, could not be stated definitely, but it appeared to lodge in the alimentary canal, and when discharged multiplied if the soil was favorable for its reproduction. There was no satisfactory evidence that one becomes infected with yellow fever by the ingestion of contaminated water; it was probably rather a disease propagated by breathing an infected atmosphere. It should be remembered that pathogenic material was, in all probability conveyed for limited distances by the feet of such insects as the house-fly and the mosquito.

The two principal etiological factors in the production of infectious diseases are: (1) A susceptible individual; and (2) a specific infectious agent. But another element besides the pathogenic potency of the organism should not be overlooked, *viz.:* the number of these organisms that gain entrance into a susceptible individual. The best classification of infectious diseases at the present time is an etiological one, but it was impossible to make even such a one complete, for diseases were being constantly added to the list. These diseases could, for example, be classified according to the channel of infection, into those due to: (1) Traumatic infection; (2) to infection by contact; (3) infection by the ingesta, and (4) infection through the respiratory tract. Another classification, based on the nature of the infectious agent, would be into two grand divisions, *viz.:* (1) Diseases due to infection by vegetable parasites, and (2) diseases due to infection by animal parasites. There were naturally many subdivisions in such a classification. Of the diseases in the second group, due to protozoa, information was difficult to obtain, as they could not be readily obtained in pure culture, and there were many technical difficulties encountered in this particular field of study. At present, our knowledge does not admit of a proper classification of the eruptive fevers.

H. NEWTON HEINEMAN, M.D., of New York, presented a paper on

THE PHYSICAL AND SCHOTT TREATMENT OF CHRONIC HEART-DISEASE,

based upon personal observation and experience with the method, as carried out at Baden Neuheim. He said that he had become convinced of the superiority of this treatment over the Oertel method. The treatment devised and practised by August Schott consists in the use of resistance-exercises and a system of baths. The waters of these baths contain a large quantity of salts, and also of carbonic-acid gas, and their temperature varies from 80° to 96° F. At first, the duration of a bath should not exceed six or eight minutes, and the higher temperatures should be employed. About one-fourth of the cases showed a distinct change in the size and shape of the heart as a result of the baths, sometimes even of a single bath. This remarkable fact was vouched for by a considerable number of well-known clinical observers. There was no evidence that the ingredients of the bath were absorbed through the skin, but the water was taken into the skin by imbibition, probably to a sufficient depth to influence the nerve-endings—at any rate, the saline baths were found to produce greater tissue-metamorphosis than the other baths. The prescribed exercises should be done slowly and without violence or jerking, and there should be a pause between each movement. When the baths are not used, these exercises should be practised twice daily for from ten to thirty minutes, but when the baths are also employed, only one period of exercising a day should be used. Edema, or moderate chronic renal congestion, forms no obstacle to this treatment, but where there is advanced arterial sclerosis, or excessive debility, it is contraindicated. The bad results are obtained in cases of overstrained heart, or of chronic valvular disease with loss of compensation. The permanency of the results seemed to be beyond question.

Dr. A. Jacobi said that the method appeared to be one of much value, and he would expect it to be especially useful in cases of heart-disease in which the heart-muscle was largely at fault, *e. g.*, in fatty heart. It was dangerous to reduce the fat about the heart rapidly, as it might bring on collapse—in any event, the best result would only be obtained by the avoidance of all violent exercise, and by the frequent repetition of the exercises. He was inclined to doubt the accuracy of the examinations upon which the statement had been made, that a perceptible diminution in the size of a flabby heart would be effected by a single bath. An error had probably crept in from displacement of the diaphragm during the interval between the two examinations, quite possibly as a result of taking some fluid into the stomach.

Dr. William H. Thomson said that he had not as yet employed the baths, but intended soon to add them to the other treatment. He had seen some very gratifying results from the use of gymnastic exercises in cases of senile heart. He would expect the baths to prove very beneficial by their action in improving the cutaneous circulation. A moment's thought would serve to convince one that the impairment of the vast capillary circulation in the integument, such as is observed in chronic Bright's disease, must be a serious load for a weak heart to bear. This peripheral obstruction was largely of reflex origin, and the baths should be able to restore and maintain the normal caliber of these vessels for at least several hours. It had been proved many years ago that even after prolonged immersion in a solution of iodid of potassium, there was no evidence that any of this salt had been absorbed through the skin.

Dr. Jacob Teschner said that in connection with his system of heavy gymnastics for the relief of rotary lateral curvature, his attention had been directed to the effect of exercise on the circulation. He cited several cases, but the following will serve as an illustration: On November 9, 1895, he began these gymnastics in the case of a girl of eleven years, who had a slight aortic murmur, and a pulse of 128 to 140. After the first treatment, the pulse had fallen to 96, and was fuller and of better quality. On November 11th, before beginning the treatment, her pulse was 108; after the exercises, and a rest of half an hour, it was 88. In another week, the pulse was reduced to about 84, and the murmur could no longer be heard. On December 18th, it was noted that the pulse remained constantly between 80 and 84.

Dr. Heineman in closing said that it was worthy of note that after the Schott treatment cardiac stimulants exhibited a power for good far beyond what they had been capable of doing before this treatment. He would especially emphasize the importance of taking plenty of time in securing the desired results.

REVIEWS.

A Text-Book of Materia Medica, Therapeutics and Pharmacology. By George Frank Butler, Ph.G., M.D., Ph.B. Published by W. B. Saunders, Philadelphia.

This is a volume of 858 pages, the text of which is printed in good type on good paper, which is in turn covered by a good binding. Having said this, nearly everything that can be truthfully spoken of the book in commendation has been said, for although it is dedicated "to the medical students of the United States in the hope that it may aid them in attaining a correct knowledge of the nature and action of drugs and the rational treatment of disease," it contains many errors about which there can be no difference of opinion. Of these we shall speak in a moment. The author tells us in his preface that the "original and descriptive properties" of the various drugs under consideration have been adopted almost verbatim from the U. S. Pharmacopœia and the National Dispensatory. For this reason these parts of the work are of course good.

In addition to the actual errors, there are a number of statements which show a very different view of the action of remedies than is generally held by the profession. Thus on page 27 we are told that "a genuine specific is tolerated only by the system in which it antagonizes some disease," and in the next paragraph that "quinin was formerly considered a specific in malaria until the fact was recognized that the drug is analogous to a normal constituent of healthy bile in its action upon plasmodia malariæ." On page 30 we are told that the endermic

method of administering drugs by applying the drug to the sore spot made by a blister, has been found more serviceable than the use of drugs by inunction. On page 32 it is stated that "a single drop of laudanum has caused the death of a child, whereas large doses of belladonna, conium, arsenic, and mercury have been taken with impunity." All mineral acids do not act as astringents, as we are told on page 34, and it is hardly correct to state (p. 36) that cardiac stimulants lengthen the contraction of the cardiac muscle. Again (p. 40), "it is generally thought that vascular stimulants do not dilate blood-vessels nor vascular sedatives contract them." In the article on Chloroform, p. 404, the statement is made that "it affects the kidneys," but we are not told how it affects them, although this is a matter of great clinical importance; and we find no statement of the value of strychnin in the treatment of accidents under chloroform. On page 407 we are told that bromid of ethyl causes "great irritation of the air-passages," which is not true. The statement that the spasms produced by strychnin are "the combined result" of the effect of the drug upon the brain or its vaso-motor center, upon the inhibitory centers of the heart, the respiratory apparatus, and, lastly, upon the reflex-apparatus of the cord, is one of the most remarkable assertions we have ever met. The lower picture on the opposite page is not that of a dog in strychnin tetanus, for its forelegs are flexed and its hind legs are not completely extended. The illustrations entitled "gelsemium-poisoning" do not show the characteristic ptosis and dropping of the jaw which are supposed to be present as the chief dominant symptoms in all cases of poisoning by jasmine. These are the only illustrations in the book devoted to the symptoms of poisoning.

It is wrong to state dogmatically that the solids of the urine are increased by the use of digitalis, for the general belief is to the contrary. The statement that a lethal dose of digitalis may cause tetanic cardiac contraction, "the patient *dying in a few minutes*," is odd. Further, digitalis usually arrests the heart of the higher animals in diastole. On page 546 the statement that "it is wise to give always only such amounts of digitalis as may be requisite to produce the desired effect," is a good general rule of a self-evident character, and the assertion that strophanthus paralyzes the heart in systole is curiously at variance with the usual condition of a paralyzed heart.

Aconite rarely causes vomiting (p. 577), and rarely much pain and nausea. Death from aconite is due to respiratory, not cardiac failure (p. 578). The statements made as to the effect of aconite on the circulation in toxic doses is incorrect. Still more remarkable is the statement that the respiration fails under aconite through paralysis of the peripheral vagi in the lungs. The advice to use emetics to empty the gall-bladder, when this viscus is obstructed by gall-stones, is dangerous. On page 689 we are told to give salines in *plenty* of water, which shows an utter ignorance of the physiological effects of these drugs.

So much for errors. Of the omissions, we find nothing said in favor of or against the use of pilocarpin in eclampsia, and the statement is made that it is useful in humid asthma, when in reality this condition quite strongly contra-indicates it. No reference can be found to gelsemin as a mydriatic, nor of the possibility of accidents under the use of cocain. But thirteen lines are devoted to nitrous-oxid gas, and but one page and a few lines to antipyrin; and finally, for the time and method of administering quinin in malarial fever, we are referred to any standard work on the Practice of Medicine.

MEDICAL AND SURGICAL REPORT OF THE PRESBYTERIAN HOSPITAL IN THE CITY OF NEW YORK. Vol. I. January, 1896. The Knickerbocker Press, pp. 256. Illustrations 36.

AS the title indicates this volume is intended to be the first of a series, and is the result of the very commendable wish on the part of the management of the hospital to advance the knowledge of the nature and treatment of disease. Whether the publication of an annual of this sort is a better way to bring this knowledge before the medical public, than the use of established periodicals would be, is open to serious question, for reports of cases lose their chief value if they are not accessible to the man who looks up the literature on any given subject, in order to draw conclusions from the experience of many men. Be that as it may, the twenty-six articles in this little volume contain much that is instructive in the fields of medicine, surgery, and pathology. The illustrations are good.

BOOKS RECEIVED.

The Annual Reports of the Managers and Officers of the State Hospitals of New Jersey for 1895.

Volume I of the Transactions of the Chicago Pathological Society.

Report of the Pennsylvania State Board of Health, 1894.

Transactions of the American Medico-Psychological Association, 1895.

Philadelphia Hospital Reports, vol. iii.

Proceedings of the Philadelphia County Medical Society, vol. xvi, 1895.

Transactions of the Medical Society of the State of California, vol. xxvi, 1896.

Department of Agriculture—Tenth and Eleventh Annual Reports of the Bureau of Animal Industry, 1893–4.

Proceedings of the Nebraska State Medical Society, 1896.

Year-book of the Department of Agriculture, 1895.

Report of Commissioners of Education, 1892–3, vol. ii, and 1893–4, vol. ii.

Twenty-second Annual Report of St. Luke's Hospital.

Transactions of the American Pediatric Society, Seventh Session, held at the Virginia Hot Springs, May, 1895. Edited by Floyd M. Crandall, M.D. This report consists of thirty-three original papers, together with the president's address and some business details.

Transactions of the American Laryngological Association, Seventeenth Annual Meeting, held in Rochester, N. Y., June, 1895; 233 pages are occupied by the president's address, 24 papers and their discussions.

Transactions of the American Climatological Association, vols. xi and xii, 1895–6. These two volumes contain the records of two very interesting meetings of this important body.

The Report of the Second Annual Meeting of the American Academy of Railway Surgeons. Edited by A. Harvey Reed, M.D., of Columbus, Ohio. The neat volume does great credit to this young association.

Transactions of the State Medical Society of Wisconsin, vol. xxx, 1896. Nearly six hundred pages are filled with a report containing much that is of general interest.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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ORIGINAL ARTICLES.

THE OPERATIVE TREATMENT OF RECTAL FISTULA.[1]

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I USE the term rectal fistula instead of the older expression "fistula in ano." This I do advisedly. Only the small group of fistulæ resulting from marginal abscess is properly comprehended under the latter title. In the large majority of cases the internal opening, when one exists, is above the external sphincter, and so, correctly speaking, within the rectum. Rectal fistula, therefore, is the proper title and should always be employed.

Fistula results from abscess. This in a nutshell is the etiology. Other causes which are credited with its production are so rarely in evidence that for all practical purposes they may be disregarded. Abscess is merely the initial stage of a process of which fistula is the effect or sequence. The best kind of treatment is preventive treatment, which means proper treatment of the abscess, *viz.:* early and free incision, perfect drainage, and daily dressings, the great object persistently strived for being to introduce closure of the abscess-cavity from the bottom.

At the very outset of the consideration of the operative treatment of rectal fistula we are confronted by several very important questions: (1) Is there any risk of injury to the general health in curing a fistula? (2) Can a fistula be cured without operation? (3) When pulmonary tuberculosis coexists, is operative treatment indicated or permissible?

In whatever terms couched, the answer to the first question should invariably be in substance that, where no serious complication nor contraindication is present, positive and pronounced benefit to the general health may be confidently expected to follow cure of the fistula.

In answer to the second question, Can a cure be effected without operation? it is possible, but extremely improbable, as well as uncertain. Stimulating injections, the fistulatome, the elastic ligature, and even, in rare instances, the simple passage of a probe may effect a cure. But in such cases the essential condition is that there shall be only one channel, and this condition, especially in long-standing cases, is so seldom encountered that it may be regarded as little less than unique. Open to the same objection is Lange's operation, which otherwise would be as practicable as it is eminently surgical.

A perfectly satisfactory answer to the third question would compel a thorough discussion of the relationship between pulmonary tuberculosis and rectal fistula. In these cases two distinct classes must be recognized, the difference between which is of vast significance. In the first, the fistula is merely a coincident trouble and owes its existence to causes entirely without the pulmonary area—in other words, it is a fistula in a tuberculous subject. In the second, the fistula is secondary to the pulmonary disease and results from it, having its origin in a tubercular abscess in the perirectal tissues, or, in other words, the fistula is itself tuberculous. When the latter condition obtains, unless seen at the very outset, the fistula is practically certain to consist of multiple channels, and the result of operation would be to leave large, open, unhealthy wounds, the healing of which would constitute a very remote probability. And since pulmonary disease is also present, and the patient usually in a greatly enfeebled condition, the administration of an anesthetic would be no inconsiderable risk. Consequently, we may say that in this class of cases operation other than for the purpose of securing drainage would be positively contraindicated. In the former class, however, where the fistula and the pulmonary trouble merely coexist, a different answer may often be given. Here three questions present themselves for consideration: (1) Will the pulmonary disease be aggravated by curing the fistula? (2) Can the patient take an anesthetic with safety? (3) Will the wound heal after operation?

The first question is one which may now be properly disregarded as belonging to the period of surgery, when hemorrhage from internal hemorrhoids was deemed salutary, and when indiscriminate phlebotomy, moxæ, setons, etc., held sway. But the two last questions are of

[1] Read before the Middle Tennessee Medical Association, Pulaski, May 21, 1896.

vital importance. The probability of an anesthetic being safely borne can only be determined by careful physical examination of the lungs, and may be heightened by the employment of chloroform instead of ether. Chloroform is much less irritant to the lungs and, in operations upon the rectum, I have learned to regard it as practically free from danger in addition to possessing decided advantages over ether. Whether or not the wound will heal it is almost impossible to foretell. The general condition of the patient, the manner in which the vital functions are performed, the extent of emaciation, and the amount and violence of the cough must all be considered and duly weighed. If affirmative answers are obtained to both these questions, then operate—one exhausting disease is certainly better than two. The after-treatment will differ materially from that in ordinary cases.

Of whatever variety the fistula may be, whether complete, blind external, or blind internal, the principle of the operation is identical, and its success in any given case will absolutely depend on the methodical observance of four fundamental maxims: (1) Careful and painstaking examination for associate or causative pathological conditions of the rectum. (2) Thorough preparation of the patient. (3) Strict antisepsis, and (4), and probably most important of all, proper after-treatment.

In a typical case of complete fistula the operation is briefly as follows: The patient, having been anesthetized, is brought to the edge of the table and placed in a lithotomy-position, the legs being supported by a Clover's crutch. A strong, grooved director is then passed through the fistulous tract, the end received upon a finger of the other hand introduced into the bowel, and, if possible, made to emerge through the anus. With a strong, curved bistoury, or pair of scissors, the bridge of tissue overlying the director is then completely divided. Now the operation is only begun. Every sinus and diverticulum is to be sought out and divided. Then with a curette or sharp spoon the diseased lining membrane of each sinus is to be entirely scraped away, and all thin and overlapping edges trimmed off. The surgeon who hesitates to sacrifice tissue in this operation, like him who aims for cosmetic effect in the removal of a carcinomatous breast, courts failure and disappointment. The wound left by an operation properly performed, in some cases, is formidable to behold. It is occasionally even necessary to remove the larger part of a buttock. But under strict antisepsis large wounds are not to be feared. Even in the worst cases healing and recovery are often astonishingly rapid.

Where the fistula is of the horse-shoe variety, *i. e.*, with the external and internal openings on opposite sides of the rectum, or with two or more cutaneous openings, and only one mucous, some modification of the operative procedure will be required. In these cases it is better to follow up the different channels by dissection from without, in order to obviate the danger of dividing the sphincter in more than one place. This is never necessary, for however many external openings there may be, it is a rare exception for more than one internal opening to be found.

In the variety known as anal, or marginal fistula, the operation is the same as given for the complete variety, only much simpler. After division of the sinus the operation is completed by merely drawing the knife through its base so as to sever a portion of the fibers of the sphincter and set the parts at rest. In other words, first convert the fistula into a fissure and then cure it by the Boyer method. General anesthesia is not always essential for this manipulation.

Whatever the variety of fistula, an important point, and one on which the success of the operation will largely depend, is to remember that the mucous membrane is frequently undermined for considerable distance around the internal opening, a submucous tract sometimes running up the bowel for an inch or more. It is always necessary to trim away this overhanging tissue and to divide the submucous channel to its farthest point.

Now we come to the questions of dressing and after-treatment. These are the crucial features. Hemorrhage from every source having been perfectly controlled, the raw surfaces irrigated and dried, and an anodyne suppository inserted, if deemed advisable, the first dressing should consist of iodoform-gauze placed lightly—not packed—in the wound until it is filled in every part and from the bottom. Over this bichlorid-gauze is placed and covered by a generous pad of absorbent cotton, and the whole retained in place by a T-bandage firmly applied. Unless indicated by the amount of exudation or discomfort of the patient, the dressings need not be changed until the second or third day, at which time the bowels should be moved. Over this the surgeon or a competent assistant should exercise personal supervision. It is best accomplished by administering a laxative twelve hours in advance, and preceding the stool by an enema of tepid water or, better, the injection of half a pint of pure olive-oil. The parts are then to be thoroughly

cleansed, the wound well irrigated with an antiseptic solution and fresh dressings applied in the same manner as before. This is to be repeated after each stool. The patient should be kept on a light but nourishing diet, and any tendency to diarrhea met by an occasional dose of bismuth.

Nothing is to be accomplished by keeping the patient in bed for a prolonged period. Especially to the tuberculous subject exercise, air, and sunshine are of the first importance, and provision should be made accordingly. After the second or third dressing in ordinary cases, if everything goes well, the patient may be directed to report at the office for further treatment.

One precaution which should be observed at every dressing is to pass a probe or the finger to the bottom of the wound, so as to break up any adhesions which the gauze may have failed to prevent. The principle upon which hope of success is to be placed is closure of the wound throughout its whole extent from the bottom.

The wounds necessitated in this operation are occasionally so large that their healing requires months; but with a careful observance of antiseptic precautions I have seen even the largest carried to a perfect result without the appearance of a single trace of suppuration.

The dangers of the operation are practically limited to two, *viz.*, hemorrhage and incontinence of feces. The former is almost exclusively a primary danger arising at the time of operation, chiefly in those cases where the internal opening is far up the bowel and the tract passes through the pelvic diaphragm and the so-called superior pelvi-rectal space, and in patients the subjects of hemophilia. Modern hemostatics have minimized this danger, and only the timid and unskilful hesitate to incur it. When ligation of the bleeding points is impossible, the free use of ferrous sulphate and iodoform, equal parts, or the former alone, will nearly always prove successful. If other means fail, the resource is still left of plugging the rectum. When this expedient is resorted to, provision for the escape of flatus should always be made, else great discomfort to the patient is sure to ensue.

The other danger, incontinence of feces, is properly speaking a sequence. It likewise arises most frequently in those cases in which the internal opening is above the pelvic diaphragm, and always follows division of the sphincter at more than one point. The most satisfactory methods of treating this condition are, according to the case, application of the actual cautery, and approximation of the severed ends of the sphincter by dissection and suture.

A brief summary of the more important points made, together with a few general remembrances, may not be out of place:

1. A careful physical examination of the lungs as well as of the entire rectum to be made in every case.

2. Pulmonary tuberculosis not necessarily a contraindication.

3. Do not put down knife until certain that every sinus has been divided.

4. Remove *all* diseased tissue. Large wounds not to be feared.

5. Caution: The sphincter to be divided only once and at right angles.

6. Special attention to the mucous opening.

7. Invasion of the perineum to be avoided, especially in females.

8. Systematic antisepsis necessary if good results desired.

9. Care and patience in the after-treatment. Dressings not to be left to the family or nurse.

10. In the after-treatment two warnings to be heeded: Complaints of unusual pain by the patient and increase of the discharge. Either of these may mean the formation of another abscess.

11. Hemorrhage and incontinence of feces the chief dangers. Both amenable to treatment and should not deter from the operation.

I should feel recreant to duty did I close without a plea for careful, thorough, painstaking examination in every case of rectal disease. The subject of fistula is an important one, and far more frequent than is generally supposed, being limited to no age, class, nor condition of life. Yet, in common with every other disease of this portion of the body, it is usually termed "piles" by its possessor, and as such prescribed for by the physician consulted without an examination even being requested.

THE PROPER MANAGEMENT OF APPENDICITIS.

By J. W. HICKMAN, M. D.,
of Tacoma, Washington.

The medical world has not yet arrived at a uniform method of treating appendicitis. It would seem, when taking into account the voluminous literature upon this subject and the great mass of facts that have been collected, that the wide differences of opinion in this direction should not obtain.

There are able men who would operate on every case at the earliest possible moment after making

sure of the diagnosis. Again, there are among our best surgeons those who would wait until there has been pus-formation, or at least an appreciable tumor. There are equally good surgeons who hold a middle ground and call it conservative. The position of the latter would be impregnable were they able to diagnosticate the catarrhal from the suppurative form of the ailment. The one does not always require operation, the other does.

It cannot be denied that operation in every case as soon as the diagnosis is satisfactorily made will, in skilled hands, give results almost, if not entirely, free from a death-rate. Nor can it be denied, either, that by this rule some cases will be operated upon that would get well and stay well without operation. The central query here is this: What percentage of catarrhal appendicitis will be followed by a recurrence, and what percentage of recurrent appendicitis will forever remain free from pus-formation? I have seen no statistics that will satisfactorily answer these questions. I have recorded in my note-book details of a case that occurred five years ago. The attack was a typical one; the symptoms were all severe; the patient was confined to bed for ten days, and during the week following there was a readily perceptible tumor, tender to moderate pressure. This case was preceded by constipation, and it is recorded that the cause "was acute indigestion." There was no recurrence till one year ago, and then a very light attack, which disappeared after the exhibition of a saline cathartic. Since then the patient has been well.

I have a little patient of twelve years who has an attack of appendicitis whenever she becomes even slightly constipated. The temperature rises to 100° F.; the pulse ranges from 100 to 120; colicky pains appear in the abdomen, with tenderness at the McBurney point and rigidity of the right rectus muscle; sometimes there is a little vomiting. This whole condition clears up as soon as the bowels have been thoroughly acted upon by sulphate of magnesia. She has had seven attacks within the last year; they do not increase in severity, and the condition is just as easily relieved as the first one was. I have seen several cases in which there has been no recurrence for one, two, and three years. Whether it is possible to have one attack and never have a recurrence, is a point I am not sure of. I do, however, feel sure that a recurrence is the rule; and I also feel sure that, sooner or later, an operation will be demanded in most cases, either because life is in jeopardy or because the patient will get tired of being confined to bed for several days at varying intervals. I have also observed that an operation is usually more difficult on account of adhesions in patients who have had several recurrent attacks of catarrhal appendicitis; especially have I found this to be true when the appendix has been located posteriorly, pointing backward and upward. I have often wished in such cases that I had operated at the beginning of previous attacks.

Just as soon as we are able to differentiate those cases in which there will never be an abscess, and in which there will not be adhesions that will cripple portions of the bowel and thus interfere with its function, there will be a better reason to condemn those who operate in every case they see. At present it is not possible to do this. A more carefully conducted observation of all cases of appendicitis and more accurately kept records will contribute much to this end. All cases of appendicitis are not alike either in their morbid anatomy or their subjective and objective symptoms. It is, therefore, desirable to study each case with as judicial a mind as possible. This course and less of dogmatic assertion will lead medical men to more rational conclusions.

It is certain that an operation will cure appendicitis and forever prevent a recurrence. Now, is it equally certain that therapeutic measures other than this can accomplish as much? Operation furnishes the only possible means of saving life in a suppurative case. I must make a single exception that will include but a very small percentage of cases, namely: where adhesions are strong and the pus finds its exit either at the surface of the body directly or *via* one of the abdominal viscera. Will any medical man tell us how to make a differential diagnosis between the catarrhal and suppurative form of the disease before an abscess has actually occurred? It will not be enough to reply that the suppurative form may be recognized by the severity of symptoms either subjective or objective. Such a test is not a guide at the bedside. No one, so far as I know, has yet claimed to be able to separate the two prior to pus-formation. The surgeon who operates indiscriminately on all cases will operate on a certain percentage of cases where no immediate necessity for operation exists. Suppose he does; if he be competent to operate at all, what risks are run by his patient? But one; namely: ventral hernia in the future. By a short incision, by a careful approximation of divided surfaces, and an accurately fitting bandage for a year, the

percentage of hernia will be small, much smaller indeed than the death-rate resulting from an indiscriminate dependence upon purgatives and expectancy.

A few years ago I saw a case of appendicitis in a patient with advanced pulmonary tuberculosis. Owing to the latter condition no operation was advised. The symptoms were not more severe than I have observed scores of times in catarrhal cases, nor, so far as I could observe, were they different. A small tumor could be felt. At five P.M. of the fifth day he was suddenly seized with terrific pain shooting through the abdomen in every direction, and at midnight he was dead. The necropsy revealed the usual ragged hole at the base of the appendix, which had been enclosed by some weak adhesions, and the peritoneal cavity was full of pus.

My note-book contains records of another case interesting in this connection, and particularly interesting in another connection, *viz.:* to illustrate a point made above, that all cases are not marked by the same symptoms. This patient was attending to his business as usual when, with as abrupt suddenness as ever marks the entering of a duct by a calculus, he was stricken with abdominal pain of a most violent character. The pulse was rapid; temperature at first scarcely elevated. There was frequent vomiting; tenderness over the abdomen, not more marked in one place than another; marked tympany; in short, the case was, so far as could be made out, one of peritonitis. Twelve hours later the patient was in collapse, and about thirty hours from the beginning he was dead. Again the necropsy revealed the small, jagged opening at the base of the appendix, and the belly full of pus, but this time no trace of an adhesion anywhere.

The first case, as I have said, was not seemingly very severe, in fact, was just such a case as many an able practitioner would have treated expectantly. Though it was a suppurative case it wore no peculiar livery that would separate it from a catarrhal case of the same severity, so far as the physicians in attendance were able to observe; yet it must be admitted that no remedial resource save an operation would avail anything in such a case. In the latter case, had the belly been opened immediately, it is possible, though I admit not very probable, the patient's life might have been saved.

Since beginning this paper I have operated on a case, the main points of which I shall mention very briefly. The patient, a telegraph operator, had been suffering for ten days when I first saw him, and had during most of this time attended to his work. At the time of my visit I found a tumor at the usual site, temperature was 100°, pulse 90, and there was not much pain, nor was the tenderness excessive. I operated at the earliest possible moment, and found an appendix covered in by the omentum, thickened to the extent of three-quarters of an inch, just as a handkerchief might be made to cover in a finger. Upon separating the omentum from the appendix, I found three or four drams of stinking pus and two ragged holes in the appendix. A large piece of omentum had to be removed. There were no other adhesions than between the appendix proper and the overlying omentum. Externally to the base of the appendix there was seen a gangrenous patch of cecal wall about the size of a dime. The case is doing well. The operation was an absolute necessity, and was very difficult; had it been done early it would have been very simple. On account of the pus it was necessary to leave most of the incision open, a grave disadvantage, that would have been obviated a week earlier. There was absolutely nothing in this case prior to operation that I have not seen duplicated in simple catarrhal appendicitis; yet here was pus and here was also a patch of gangrenous cecal wall, not covered by any adhesion, that would in a few hours have permitted the contents of the gut to have escaped into the peritoneal cavity.

The question of the proper management of appendicitis is capable of any amount of argument, but I am entirely convinced that the disease is purely a surgical one, that the only safe treatment is operation. Other therapeutic measures will avail in perhaps a majority of cases, at least in the first attack, or possibly in the first few attacks. I know, however, that any other means of treatment will be marked by a mortality-rate, and this must be true until we are able to separate catarrhal from suppurative cases. This I repeat cannot be done at present. Then why not operate at once in all cases? Such a course, in properly qualified hands, is as nearly absolutely safe as any operation can be. Suppose some cases are operated on that would have gotten over the attack without operation; better this than to run so grave risk as we must encounter when we wait.

Infected Cuba.—A recent report to Surgeon-General Wyman tells of an increase of both smallpox and yellow fever in Havana. The latter disease is chiefly confined to the Spanish troops, while the natives furnish most of the smallpox-cases.

ERUPTIONS FROM MERCURY.[1]

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MERCURY and its preparations are powerful in altering physiological action, and in controlling disease, and in some susceptible people this power may produce either dangerous or disagreeable effects. It causes, for instance, a variety of rashes of the skin, most frequently an erythematous or scarlatinoid eruption, of which the following are examples:

On December 3, 1893, a healthy, bright-complexioned, dark-haired man, twenty-six years of age, consulted me for a nummular psoriasis of the trunk and extremities that had appeared for the first time a few days before. A salve was ordered consisting of equal parts of white-precipitate and oxid-of-zinc ointments to be rubbed into the patches. The diseased areas did not implicate much of the skin, and no trouble from absorption of the drug was expected. Furthermore the preparation was not a strong one. The unguentum hydrargyri ammoniati is a ten-per-cent. ointment, and it was reduced by the addition of oxid-of-zinc ointment to five per cent. Four days after prescribing for the patient, I was called and found him suffering from a bright-red, itching, and burning rash, that was most marked at the flexures of the joints. As the patient suspected he might be suffering from syphilis it became important to determine the true nature of the eruption. It was clearly not a syphilitic roseola, which is spotted, whereas this was diffuse, and furthermore the syphilitic rash is without subjective symptoms, while this was extremely itchy and burning. On stopping the use of this ointment the rash quickly disappeared. The violent reaction of the skin had, however, a favorable effect on the psoriasis, which also faded away, and had not reappeared when the patient was last seen by me two and a half years afterward.

Although the eruption was ascribed to the mercury, yet there was a possibility that it might have been due to other causes, for instance to the fat of the ointment being rancid, as there are fatty acids in rancid fat that are very irritating to sensitive skins. Neisser[2] says that the so-called mercurial eczemas from the application of blue ointment are caused by inferior ointments that contain turpentine, fatty acids, nitro-benzol, etc. He does not, however, deny[1] the existence of true mercurial exanthems.

A subsequent experience with the same patient, however, showed that the mercury was really the offending substance. On November 16, 1895, he came to me with a pimple on the frenum of the penis, and a small shallow ulcer with a dirty, yellow floor, in the sulcus. These lesions had appeared a day or two after exposure. Not thinking of his susceptibility to mercury, black wash was prescribed, and by the next day he had a dermatitis mercurialis of the glans (balanitis mercurialis), with considerable edema of the prepuce. The black wash was suppressed, and he was ordered a powder of subgallate of bismuth, under which both the venereal and mercurial symptoms quickly disappeared. As is well known, black wash is for most people a very mild preparation, made by adding one dram of calomel to a pint of lime-water (1–128).

Calomel is usually a very mild preparation, causing no irritation either to the skin or to the mucous membranes, but not long since I had an experience illustrating its power of causing a disagreeable eruption. A man, forty-five years of age, who was confined to his bed on account of an operation for a large sarcoma of the thigh, but who otherwise enjoyed good health, got an uncomfortable itchiness of the anus and scrotum, which was probably caused by indigestion and constipation, brought on by confinement in bed. As the mercurial preparations are among the most successful antipruritics, and calomel-ointment is particularly useful in pruritus ani, a dram of calomel rubbed up in an ounce of simple ointment was ordered applied to the anus, perineum, and scrotum. In a couple of days the skin of the genitals and crotch was scarlet and swollen, with marked edema of the prepuce. But on discontinuing the calomel-salve, and applying an oxid-of-zinc ointment, the erythema quickly subsided. In this case there was a superficial dermatitis around the field of operation on the thigh, and the inflammation of the genitals might easily have been mistaken for an erysipeloid extension of the process. Gaucher,[3] in mentioning the rarity of calomel causing an eruption of the skin, relates a case where a single application of calomel-ointment caused an erythematous and eczematiform eruption implicating nearly the half of the body. After this rash disappeared, the patient took two

[1] Read before the California State Medical Society, Los Angeles, April 24, 1896.
[2] Verhand. des V. Congresses der deut. derm. Gesellschaft.

[1] *Arch. f. Dermatologie und Syphilis*, 1896, vol. xxxlv, p. 104.
[2] "Leçons sur les maladies de la Peau," par E. Gaucher, 1895, p. 113.

pills containing a centigram of sublimate each, and the day following he had a generalized desquamative scarlatiniform erythema, accompanied by a vesicular eruption simulating eczema.

But in attributing a mercurial dermatitis to the action of calomel, when applied to the genitals, one must be on the alert for at least two sources of error; in the first place, that the irritation may not be due to the mercury at all, but, as suggested in the relation of the preceding case, to the action of rancid fat in the ointment-base; and in the second place, that the patient may be taking potassium iodid, which, being voided in the urine, comes in contact with the calomel, and forms the biniodid of mercury, a very much more irritating salt. In 1890, Cordier[1] drew attention to the fact that a severe balanitis may occur from the potassium iodid in the urine coming in contact with calomel dusted on the glans. For this to take place, however, a long foreskin seems to be necessary, so that a very considerable quantity of urine may be sucked up under the prepuce by capillary attraction. It would be quite unlikely that dribbling urine containing potassium iodid coming in contact with calomel-ointment would make enough biniodid of mercury to irritate the skin of an ordinary individual. It is as well, however, to bear this contingency in mind in any case like the above, where such a mild preparation as calomel irritates[2] the skin. This patient was not taking potassium iodid during the time the calomel-ointment was being applied to the genitals.

In this same patient the sarcoma recurred in a few weeks, and a second operation was undertaken for its removal. Without thinking of his susceptibility to mercury, a sublimate gauze-dressing was applied to the wound. On the second day the skin was bright-red, tense, shining, and excruciatingly itchy, and the affection might easily again have been mistaken for erysipelas. The dermatitis quickly subsided on changing the dressing.

In both these cases, therefore, a rash was caused by an ointment containing a mercurial preparation, and, as if to show conclusively that it was the mercury and nothing else that caused the mischief, the other mercurial preparations that were not applied as ointments also caused an erythema. Both patients were very sensitive to mercury, but fortunately they got well promptly on the withdrawal of the drug. This does not always occur, however, as the rash may continue for a long time after all contact with mercurial preparations has ceased.

Another fortunate circumstance was the localization of the erythema to those parts where the mercury has been applied, as a single application to a limited portion of the skin has been known to cause a widespread rash, as in a case reported by Dr. Alexander,[1] where a ten-per-cent. white-precipitate salve applied once to the eyelids caused a universal eczema.

[1] Sur une nouvelle variété de balanite, *Lyon Médical*, No. 1, 1890. Abstract in the *Annales de Dermatologie et de Syphiligraphie*, 1890, p. 442.

[2] Oculists have long been aware of the danger of dusting calomel in the eyes of patients taking potassium iodid internally, as the potassium iodid in the tears, coming in contact with the calomel, may form the biniodid of mercury, of which a very small quantity is irritating enough to cause a severe conjunctivitis.

SERUM-THERAPY AND PROTECTIVE INOCULATION.[3]

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(Concluded.)

Syphilis.—In syphilis we see a natural immunity under several different conditions: in the tertiary stage of the disease for primary and secondary symptoms; in children of a syphilitic mother (Profeto's immunity); and in the mother giving birth to a syphilitic child (Colle's immunity). The experiments in producing curative effects by the use of blood-serum are embodied in a number of reports. Richet and Hericourt were the first to try it, and in 1891 treated several cases with serum from a dog which had been injected with the blood of a syphilitic patient. The two cases first experimented upon are of historic interest. The first patient, a woman, who had contracted syphilis twenty years before, presented symptoms of a tabetic nature, and these were cured by three injections of 2 c. c. of serum within a week. The second patient, a young woman, with syphilis of eighteen months' standing, showing a great deal of ulcerating surface, was greatly benefited after seven injections, the ulcerating surfaces decreasing in size by four-fifths. Tommasili, Giuseppe Mazza, Kallmann, and others used the serum from the blood of animals naturally resistant to syphilis, such as dogs, sheep, calves, lambs, and rabbits. This serum, while apparently causing improvement at first, was followed subsequently by a return of the acute symptoms, and the disease ran its course uninfluenced.

Pellizzari was the first to apply to syphilis the procedure used in other infectious diseases, *viz.*: that of using blood-serum from animals having an

[1] *Arch. f. Dermatologie und Syphilis*, 1884, p. 105.

[3] Prize-essay for 1896 of the Alumni Association of the College of Physicians and Surgeons, Baltimore.

acquired immunity. He injected a serum from a tertiary-stage syphilitic into patients suffering from an earlier stage of the disease. The results were not very successful, evidently due to the weakness of the serum. The cases ran their usual course, although decreased in duration and intensity. Gilbert and Fournier of Paris treated a number of cases with serum prepared from she goats and dogs. These animals were injected with the blood of syphilitics presenting fully developed secondary symptoms. Ten injections were given to them in fifty days, using 180 grm. of blood. Other goats were inoculated with nine chancres in two months, and another dog with chancres and papules, and also given blood-injections. The serum from the animals was apparently about the same. Seventeen cases were treated in all with varying results. In some cases little or no effect was noted; in others there were improvement in general conditions, recovery of strength, and abatement of symptoms.

Neumann of Vienna reports a number of cases treated with lamb's blood, and with the blood of a tertiary syphilitic. Results were in the main unsatisfactory, some improvement being noted, but it was not permanent. Researches in the use of the blood-serum of tertiary syphilitics by Vieviorovsky of St. Petersburg confirm Pellizzari and Gilbert's reports. Five cases were treated.

The application of serum-therapy to syphilis meets with practical difficulties, among which is the absence of a knowledge of the specific cause of the disease. In this connection, however, it has not the practical importance that it has in other diseases, for we already possess very efficient means of treatment, but there are cases that resist mercurials and iodids and in these it would be particularly valuable. In a disease like syphilis, with its manifold late manifestations, a generation or two must live and die to determine absolutely the value of any new treatment.

Typhoid Fever.—In this disease some very interesting work has been done; beginning with the researches of Chantemesse and Widal in 1892. These observers found, as early as 1888, that susceptible animals could be rendered immune by inoculating them with cultures of the typhoid organisms which had been rendered sterile by heat. These showed immunity from inoculations with the typhoid bacillus, but not from its toxin. This toxin was first described by Pfeiffer in 1894. He found that it was associated with the body of the bacillus, and that it was not found in cultures sterilized by filtration. The toxin is not destroyed at the temperature, 54° C., which kills the organism.

Neisser in 1893 found that mice injected with the blood-serum of convalescent typhoid patients resisted three or four times the usual toxic dose of cultures of the organism. Stern, in 1894, found that the blood of individuals who have previously had typhoid produced immunity; also that the blood from fatal cases had the same effect. In the fatal cases the blood was taken from the body shortly after death. He also found that in a series of persons who had not had the disease, the blood in some cases caused resistance to the organisms, although larger doses were required. Stern suggests that in these cases the patients had suffered from an unrecognized attack of typhoid. Another interesting point was elicited in 1894 by Cæseris, Demel, and Orlando. They found that animals rendered immune from the coli bacillus of Escherich were also immune from typhoid fever, and *vice versa*. Peiper, before the German Congress of Internal Medicine, August, 1895, reported that he had immunized sheep against typhoid by repeated injections of cultures of the typhoid bacillus sterilized at 55–60° C., which, of course, did not destroy the toxin. The serum from these animals, when injected into guinea-pigs, protected them from several times the toxic dose of the bacillus of typhoid fever, and cured guinea-pigs inoculated with a fatal dose, even when administered some three or four days after injection.

The application of an antityphoid serum to the human being was made by F. Klemperer and E. Levy in the wards of Dr. Naunyn of Strasburg. The serum was obtained from dogs protected by inoculations of cultures of medium virulence. Five patients in the first week of the disease were inoculated with 20 c. c. of serum on three successive days. The injections were well borne, and produced neither albuminuria nor urticaria. The disease ran a shorter course than usual in each of these cases. The fever at once showed marked morning remissions, and ceased entirely toward the close of the second week, or at the beginning of the third. One case relapsed after a week. There is such a marked difference in the various cases of typhoid that it is impossible to form anything like a definite idea of the value of this treatment. The small number of cases treated could easily make the results appear as coincidences.

Another method of treatment was tried by Fraenkel and Manchot in 1893. They treated fifty-seven cases of typoid with sterilized cultures of the bacillus grown in thymus-bouillon. The course of the fever was considerably modified,

apyrexia occurring earlier, and the morning remissions being more marked. The same treatment, using instead the *Bacillus pyocyaneus*, was tried by Rumpf in 1893, and Kraus and Buswell in 1894. The results were unsatisfactory. Leaving out the five cases of Klemperer and Levy, nothing has been done in the serum-treatment of this disease of any practical importance. The fact that the disease runs a definite course and is followed by a slight period of immunity, makes it seem probable that further developments may give more satisfactory results.

Asiatic Cholera.—Among the diseases that have come in for their share of research-work in protective inoculation is Asiatic cholera. Many curious and interesting facts have been elicited concerning this disease and the toxin of the spirillum of Koch, or what is ordinarily spoken of as the comma bacillus. Several toxic substances have been isolated by Brieger and others, but the principal interest attaches itself to the protective inoculations of Ferran, and later of Haffkine, and to the serum-treatment of Ransom, the last named not yet tried upon man.

The method of Ferran, which was extensively used in Spain during the epidemic of 1885, consisted in the injection of 1 c. c. of a pure culture of the culture in bouillon into each arm of the person to be protected. The official reports were collected some time after its use, and there has been much written and said concerning the efficacy of the treatment. According to the official reports, the death-rate was about 43 per cent. in unprotected individuals, and 25 per cent. in protected individuals attacked. A much less number of the injected had the disease, than of those unprotected.

Shakespeare, who was sent to Spain by the United States Government, reporting upon the method says: "It would seem from analysis of official statistics that the method of anticholeric inoculation after the method of Ferran, besides giving immunity from attack and death by cholera, furnishes a means of bringing an epidemic to an end."

Haffkine of the Pasteur Institute in 1893 published his method of protective inoculation for cholera. This method, first tried upon animals, next upon himself and other individuals, and subsequently upon persons in India, shows it to be without danger. It consists in acclimatizing the system as it were, first to weak cholera-poison, and then to stronger poisons, or, as Haffkine calls it, the poison from "exalted" cultures. This develops a high degree of resistance in animals and also in man. The aim is to establish a resistance sufficient to withstand the absorption of the cholera-poison from the intestinal tract, should infection take place. The vaccinations are usually done upon the arm and cause only slight malaise and some edema and tenderness about the puncture. The vaccines consist of attenuated and exalted cholera-cultures, and may be either of living bacteria or an emulsion of cholera bacilli that have been killed by dilute carbolic acid. The living vaccines are more powerful and are difficult to keep and transport; the carbolized vaccine is not so powerful but is less liable to prove a source of infection, and it also keeps well and may be easily carried about.

The attenuated cultures are obtained by growing the organism in a medium, aerated at 39° C. for several days. The exalted cultures, which are very virulent, are grown in the peritoneal fluid in the peritoneal cavities of live guinea-pigs. As soon as an animal dies, the peritoneal fluid is transferred to the peritoneal cavity of another under the strictest aseptic precautions. This is continued until the cholera-spirillum has obtained its maximum exaltation, determined when the time between inoculation and death is no longer shortened. Generally from twenty to thirty guinea-pigs are used before this comes about. The bacilli-laden fluid is then inoculated into an agar-tube of standard size, and a smooth, even surface-culture obtained by growing it for twenty-four hours in a thermostat. Two or three cubic centimeters of broth are then put in the tube and the culture thoroughly mixed with it. It is then pipetted off and broth (bouillon) added to make 8 c. c. The carbolized vaccines are similarly prepared, using instead five-per-cent. carbolic acid. Only 6 c. c. are made from a tube, in order to compensate for the loss of strength on adding the acid. The attenuated vaccines are prepared in the same way. One cubic centimeter is a dose, and from three to five days elapse between the vaccinations.

The method was tested by Haffkine in India from April, 1893, to July, 1895, and he summarized his results before the Royal College of Physicians and Surgeons as follows: "In all those instances where cholera has had a large number of victims, that is to say, where it had spread sufficiently to make it probable that the whole population inoculated and uninoculated were equally exposed to infection, in all these places the results appeared invariably favorable to inoculation. After an epidemic actually breaks out, it tends to reduce the mortality even during

the time which is claimed for producing the full effect of the operation."

Koch believes that, from Haffkine's reports, the value of the inoculations has been determined. Haffkine intends, however, to make further studies in this line, and also to test the power of antitoxic serum obtained from immunized animals. Pfeiffer of Berlin has prepared a quantity of an antitoxic serum that is very active in animals, and that Haffkine intends to use in his first experiments.

The application of serum-therapy to cholera is embodied in a few scattered reports by Pawlowsky, Buchstab, Federoff, and others. The results show that dogs and guinea-pigs may be rendered immune by injection of blood-serum from animals that have been immunized by means of sterilized cultures. Freymouth of Danzig reported three cases treated by inoculations of serum from individuals who had recently recovered from the disease. One died. Of the others one received 80 c. c., the other 20 c. c. of serum.

By far the most important results have been obtained by Ransom, who reported his experiments in July, 1895. He obtained a toxin from cholera-cultures by a method that he does not describe—a solid, having the same properties as the vibrio and its cultures. With small doses of this toxin he immunized guinea-pigs, sheep, and goats, and obtained a blood-serum possessing antitoxic properties against the cholera-poison and the living cholera-vibrio. As yet the serum has not been tried upon man, but from a theoretical standpoint it promises better success than the methods of other investigators.

La Grippe.—The practical application of serum-therapy to the treatment of influenza, or la grippe, as it is called, has not yet been made, but, in view of the experiments of Bruschettini on rabbits, it seems highly probable that something may be done in this line. In 1893, this observer published the results of his experiments, which, in brief, are as follows: He vaccinated rabbits with a filtered blood-culture of the bacillus of Pfeiffer, which is now established as the cause of the disease. The blood of rabbits so inoculated contained an antitoxin that, inoculated into rabbits infected with the grippe-organism, exerted a most marked curative action. It conferred immunity on rabbits when used in the proportion of 1–42,000 of the body-weight.

Bubonic Plague.—Another recent discovery in immunity has been made by Yersin, Calamette, and Borrel of the Pasteur Institute, working under Roux's direction. They have succeeded in showing the possibility of immunizing animals from bubonic plague, and in curing those suffering from the disease. Immunity was conferred on rabbits, guinea-pigs, and mice by means of injections of large quantities of the cocco-bacillus of Yersin, which had been heated for an hour at 58° C. The filtered cultures had no effect on the animals. Serum from these animals conferred immunity on other animals. A horse, immunized by a similar method, gave a serum that produced immunity in animals. It is well to note that no other curative serum, antidiphtheritic, anti-erysipelatous, antitetanic, or antivenomous produces immunity or cure in the plague.

Typhus Fever.—In passing rapidly over the various diseases in which the serums have been used, one should not leave out typhus fever, as Legrain, according to the reports of Shaefer, used the blood-serum from patients who had previously suffered from the disease, with alleged good results. This was during an epidemic in Algeria.

Yellow Fever.—Much more interesting to Americans is the plague of the Southern countries—yellow fever. Sternberg, in his book "Immunity and Serum-therapy," in the chapter devoted to this subject, cites some attempts at producing immunity in that disease that are amusing, if not of scientific value. Among them is the method of Humboldt, who attempted to produce immunity by inoculating animals with the putrefying livers of sheep which had been bitten by a certain species of serpents. The recent so-called mosquito-inoculations are interesting, though not successful. These consisted in allowing a mosquito that had fed upon a yellow-fever patient, to sting a person desiring to be inoculated. The inoculation recommended by Freire of Rio Janeiro deserves mention on account of the prominence given to the method. This consisted in vaccination with attenuated cultures of a micrococcus, that Freire thought to be the cause of the disease. It is hardly necessary to add that this micrococcus is not admitted to that important *rôle* by competent observers, and that the vaccinations proved fruitless.

Pneumonia.—A few years ago the medical world was aroused by the experiments of G. and F. Klemperer concerning the toxin and antitoxin of the *Diplococcus lanceolatus capsulatus* of Fraenkel, the specific microörganism of lobar pneumonia. They succeeded in isolating a toxalbumin from bouillon-cultures by precipitating it with alcohol. By using filtered cultures, they immunized rabbits. They claimed that there is an antitoxin produced in the blood of the immunized animal that renders the toxin innocuous.

Issaeff differs with them in this respect, as he claims that rabbits are rendered immune from inoculations with the diplococcus, but not from injections of the toxalbumin. However, the blood-serum of these immunized animals, when injected into other animals, produces immunity from inoculation and, furthermore, if the animal is already infected, it exerts a marked curative effect. Encouraged by these successes, the serum was tried upon six cases of pneumonia in Leyden's clinic in Dresden. About 6 c. c. was injected under the skin of each patient; all recovered. In all the cases there was an immediate fall of temperature to normal; in two cases it remained normal, and in two others it rose again in six hours. Emmerich claims that a degree of immunity higher than that produced by the Klemperers can be brought about, and he expresses great hopes for the future of serum-therapeutics in pneumonia. Certainly, a much higher degree of perfection in methods, and many more convincing experiments must be made before it can be applied to the treatment of the disease in general practice.

Smallpox.— The phenomena and history of smallpox are too well known to need more than passing notice. We know but little more of the disease than Jenner did. The cowpox is rather to be regarded as a modified form of smallpox in the bovine than a special disease, and this is especially true when viewed in the light of recent revelations in the immunity produced in other diseases. Sternberg, and subsequently Kinyon, showed that the blood-serum from an immune calf prevented vaccination from "taking" if the vaccine-points were immersed in it. This was found to be true of both bovine and humanized vaccine-virus. Sternberg, and later Kramer, Boice, and Landmann showed that injections of blood-serum of immunized calves, or of patients recently recovered from smallpox, did not prevent the formation of the vesicle. Béclère, in December, 1895, before the Paris Academy of Medicine, stated that he found by experiment that the blood-serum of a heifer, if taken after the active stage of vaccination had passed off, prevents the "taking" of a vaccination when injected at the same time. This serum also possesses therapeutic power when injected later.

Anthrax.—This was among the first diseases to be experimented upon, and, as early as 1880, Toussaint published an article relating to the immunity from anthrax acquired as the result of protective inoculation. Toussaint's method consisted in inoculating sheep with defibrinated blood from an animal dead from anthrax, either filtering it through paper or heating it to 55° C.

Pasteur found that a single attack of anthrax protected the animal from subsequent attacks, and working along the line of protective inoculations he found that grown in a high temperature the anthrax bacillus did not form spores, and also lost its virulence. Cultures so attenuated he used experimentally on sheep, and succeeded in producing immunity. This was in 1891. Chaveau in 1892 found that blood of animals dead from anthrax, heated to 50° C. for fifteen minutes, could be used as safely and with as good results as Pasteur's vaccine, and had the advantage of being much more easily prepared and used. The tip of a vaccine-point being covered with the blood, several scratches with it sufficed to vaccinate the animal. Subsequently, he found that the preparation required more care than he had at first thought, so he returned to cultures, using bouillon-cultures attenuated by heat. The use of the vaccine was put to a practical test in certain districts where anthrax had been particularly prevalent, and the results were very gratifying, the death-rate being reduced from 7.03 to twenty-four hundredths per cent. Chamberland collected statistics of ten years of vaccination by Pasteur's methods, and found that where the mortality had been about ten per cent. in sheep and five per cent. in cattle, it had been lowered to ninety-four hundredths per cent. in sheep and to thirty-four hundredths per cent. in cattle.

The first experiments in the serum-therapy of anthrax were published by two Japanese bacteriologists, Ogata and Jasuhara. They made two important discoveries which subsequent experiments by other investigators have failed to substantiate. They claimed to have attenuated the anthrax-bacillus by growing it in the blood-serum of resistant animals, as the frog, rat, and dog, and that mice inoculated with frog- or dog-serum before infection recovered and were afterward immune. Sclavo of Rome, using the blood-serum of goats highly immunized against anthrax, succeeded in conferring partial immunity, and announced that after infection the serum prolonged the life of the animals—several days longer than the control-animals.

The latest report comes from Marchoux, working under the direction of Roux. He finds that the serum of sheep, highly immunized by attenuated cultures, and subsequently by large quantities of virulent cultures, produces immunity in eight hours, but that it wears off in three days. It is also curative, and as long as there is no

marked edema in the animals treated the results are good. From ten to twelve cubic centimeters are used. After the edema becomes marked the cases are not amenable to treatment. Marchoux believes that the serum causes an increased action on the part of the phagocytes.

Hydrophobia.—The exact cause of rabies is undetermined. Fae, Babe, and Gibier all thought that they had demonstrated an organism associated with the disease, but later investigations have not borne out their reports. The toxic substance, or virus, as it is generally called, is found in the brain, spinal cord, nerves, and saliva of infected animals, and the disease is transmitted from animal to animal by inoculations of these. Pasteur in 1885 found that by exposing infected cords to the air their virulence was gradually lost, and he conceived the idea of producing immunity and curing the disease in a manner similar to his anthrax method. A glycerin-emulsion of a cord that has remained for twelve days in a dry atmosphere is generally used to begin with, and stronger and stronger cords are then used, until the animal can take an emulsion of the cord of a rabbit that has just died from the disease. Out of nearly a thousand cases treated during a period of five years, only fifty-eight have died.

The Italian, Centanni, succeeded in producing immunity by subjecting the cords to the action of an artificial gastric juice. After from twelve to twenty hours' digestion, the virus no longer kills, but produces immunity. In connection with Tizzoni, he succeeded in producing a blood-serum of high immunizing power. The dry precipitate of this, mixed with water, and injected into animals, produces immunity, and also exerts a curative effect on animals that have been bitten by rabid dogs.

The authors, as quoted by Sternberg, believe that this antitoxin possesses the following advantages over Pasteur's method: Applicability at any time during the period of incubation up to the moment of the appearance of symptoms of rabies; absolute absence of virulence or of any injurious action; very rapid treatment by the injection of one or several small doses of material; complete solubility, and consequently prompt absorption of the material, and its easy preservation in the dry condition.

Antitoxin prepared in this way has not been used on man as yet, but theoretically it seems very much better than the method now in vogue.

Malignant Growths.—A great deal of attention has been paid of late to the treatment of malignant growths by means of antistreptococcic and other serums. There has been considerable adverse criticism from many good authorities, who decry the experiments as useless. Still, in view of the fact that we have no means of successfully combating cancers that are inoperable, the experiments certainly can do no harm, and may be productive of great good.

Among the earliest experiments are those of Richet and Hericourt, who have done so much original work in scientific medicine. They prepared antimalignant-growth serum by the following procedure: An osteosarcoma was taken and thoroughly rubbed up with water in a mortar, and then strained through a cloth. This was injected into dogs and a donkey, and after about ten days they were bled. The serum was obtained in the usual manner. In April, 1895, they reported the results of their labors to the French Academy of Sciences. They had used the serum on two cases successfully, one being a recurrent costal osteosarcoma about the size of an orange. After forty days of treatment with 3 c.c. of serum a day, the growth had been absorbed, as had almost all of the cicatricial tissue. The second case was one of a tumor of the stomach, about the same size, which also disappeared under treatment.

Subsequently, in October, 1895, the same authors reported the following results after having used their serum on a large number of cases:

There is a diminution of pain, the cancerous ulcers dry up, assume a healthy, granular appearance, and in some cases attempt to cicatrize. There is also a decrease in the size of the growth and of the enlarged lymphatic glands, and the evolution of the case seems to be delayed. So much for the good side of the subject. Unfortunately, after about two months of improvement, which takes place in four-fifths of the cases, the disease breaks out afresh; new foci form and death ensues.

A case which the writer treated by the antimalignant-growth serum, prepared after the manner given above, resulted as did the majority of the cases just cited.

Emmerich and Schall, at almost the same time that Richet and Hericourt made their announcement, came to the front with their new treatment of cancer, which consisted of injections of serum from sheep previously injected with virulent cultures of the *Streptococcus erysipelatus.* An injection of from one to twenty-five cubic centimeters of the serum, according to the size of the growth, was made directly into the neoplasm. They reported a diminution in symptoms and, in some cases, complete absorption of the growth.

A very bitter discussion has since followed in the German medical journals concerning the practicability of the cure. Angerer of Munich made an extensive report on all the cases he had seen it tried upon, and in every case recurrence eventually took place. Many other observers have reported recurrences and bad results, although occasional reports of improvement and cure continue to be made. In November last, in connection with Zimmerman, Emmerich modified his treatment by injecting with the serum pure cultures of the erysipelas-coccus thirty-six hours old. By this method he claims better results. The method of preparation of their serum is given in full in the *Deutsche medicinische Wochenschrift* for November 14, 1895.

Gibier deposited three years ago with the Academy of Medicine, New York, a sealed envelope containing the outlines of the application of serum-therapy to cancer and syphilis, and since then claims to have gotten good results in recent but as yet uncompleted experiments.

Glanders.—In addition to what has been said concerning the diseases in man, there remain a few notes on the researches on diseases of animals. Most important of these is glanders, as it occasionally occurs in man. Babes reports the cure of several cases by the use of mallein, but the remedy is not used to any extent in the treatment of this affection, as far as the writer is able to ascertain.

Mallein is a glycerin-extract, analogous to tuberculin, prepared from bouillon-cultures of the *Bacillus malleus* or, better, according to Koch, from the growth of potatoes. It is useful, too, in diagnosing incipient glanders in the horse, 1 c. c. injected subcutaneously causing a sharp rise of temperature to 40° C. within from fifteen to eighteen hours if the animal has the disease.

Pleuropneumonia in cattle is protected against by inoculation of serum from the lungs of an affected animal, or from the serum around such an inoculation. This is the outcome of a method used by the natives on the shores of the Zambese, which was reported by Willems as early as 1852. The natives caused immunity in animals by forcing healthy animals to swallow the liquid from the pleural cavity of an animal recently dead from the disease. In France Pasteur's name is intimately connected with the researches on immunity in pleuropneumonia. The government has taken up the matter, and the disease is also protected against extensively in Australia and Southern Africa.

Foot-and-mouth Disease.—In this infectious disease of cattle and swine protection and curative inoculations have availed nothing, although Behla claims to have produced immunity in young pigs and lambs by injecting filtered saliva from affected animals in two-per-cent. carbolic acid.

Chicken-cholera.—Chickens affected with this disease, which is too well known to need description here, due to the *Bacillus septicemia hemorrhagica* of Hueppe, can be rendered immune by vaccinating with attenuated cultures of the bacillus. The attenuation is produced by inoculating a rabbit, which will die from septicemia produced by the organism. The blood of the rabbit is then used to vaccinate the chickens. Kitt was able to produce immunity by injections of blood-serum from immune hens, also by inoculations with the albumin and yolk of their eggs.

Symptomatic Anthrax.—In this disease, caused by a spore-formation, vaccination has been done with great success, especially in Switzerland, where the disease is most prevalent. The method used is vaccination with powdered muscles of animals recently dead from the disease. This is attenuated by heat. The same result can be obtained by attenuated cultures.

Influenza, in the horse, a disease due to a small bacillus, described by Schütz, is treated by inoculations of the blood of horses recovering from the disease. Researches in this disease were carried on by the War Department of the German government.

Hog-cholera is a disease that, in connection with the swine-plague, has been the result of extended experiments by a number of investigators, among them Salander, Smith, and Metschnikoff. They succeeded in partially immunizing rabbits and guinea-pigs by using increasing doses of attenuated cultures of the organism, and also by using blood-serum from protected animals.

Hog-erysipelas.—The mortality of swine from hog-erysipelas has been greatly reduced in France during the past eight or nine years by using protective inoculations of attenuated cultures obtained by passing the organism through rabbits, which greatly reduces its virulence. This method is the result of the researches of Pasteur and his confrères of the Pasteur Institute.

Lorenz, working with the blood-serum of protected animals, succeeded in immunizing, for a short time, other animals. Unfortunately, a toxic substance was developed in the blood of protected animals, which killed the animals experimented upon.

Serpent-venom.—Another form of immunity is that to the venom of serpents. This has been the subject of successful investigation by Cal-

mette, of the Lille Pasteur Institute, and independently by Frazer, of Edinburgh. Calmette found that animals could be rendered immune in two ways; first by injection of small quantities of serpent-venom, or else by injection of venom modified by chlorid of gold or chlorid of lime. These animals can then take several times the quantity of the poison without its producing any marked effect. Their blood also exerts a marked antitoxic action, and blood-serum from them exerts a marked immunizing action. Calmette has on hand a quantity of this serum that he sends out to those desiring to test it. This is prepared from horses immunized against the venom of snakes. It keeps well in a cool, dark place. A small amount of camphor is added to aid in preserving it. His directions for the treatment of the tests are as follows: The limb above the bite should be tightly tied with a handkerchief. The wound should be washed with a 1–60 solution of hypochlorid of lime. The dose of the serum is then injected into the subcutaneous tissue of the belly. From 10 to 20 c. c. is a dose. In addition to this 8 to 10 c. c. of the hypochlorid solution is given hypodermatically about the wound. After this the tourniquet may be removed. Coffee should be given to the patient and friction practised. Ammonia and alcohol should be avoided, as they interfere with the action of the serum.

Frazer has also made extensive researches in this direction. His results are practically the same as those obtained by Calmette. One interesting thing he did was to immunize a pregnant cat. The kittens, to which she gave birth shortly afterward, were also immune.

Alcoholism.—Toulouse reported in March before the Biological Society of France his experiments in regard to the curative action of an anti-alcoholic serum. He gave two dogs 40 grams of alcohol for a week, and from them prepared a blood-serum. Of this he gave 24 c. c. to a patient suffering from acute delirium tremens. On the following day there was a fall in temperature, and the mind of the patient became clear. He is now attempting to discover whether this action of the serum was due to its being anti-alcoholic, or whether it is a quality inherent in all serums.

CLINICAL MEMORANDUM.

CASES OF HEMATURIA.

By FREDERICK W. ROBBINS, M.D.,
DETROIT, MICH.

Hematuria, although only a symptom, nevertheless holds such a prominent place in the mind of the general practitioner as to be regarded frequently as a disease *per se*.

It should be noticed whether the blood comes with the first portion or last portion of urine, or be evenly mixed with the entire quantity; whether the urine be brown, dark, or light red. If the latter, and the hemorrhage is slight, the trouble is located in the bladder, or in front of it; but if the former, one cannot be certain that the bleeding is from the kidneys. If, however, pus be present, the location need not, as a rule, be looked for beyond the bladder. It is important to observe whether exercise has any effect in producing or increasing the hemorrhage. Such would be the case were there a foreign body in the kidney, ureter, or bladder; also, probably, if a well-developed malignant growth were present; but not in a tubercular kidney or bladder. Observe also whether the urine is perfectly clear at one time, and bloody at another; if the blood be evenly diffused or present in the form of clots.

Pain may be severe, acute, from plugging of the ureter with a clot, or the pressure of a sharp, foreign body, or dull grinding, or simply a sensitiveness on deep pressure. The kidneys should be carefully palpated, which can usually be accomplished if the patient lie on his back with his thighs flexed, and take a long breath, one hand being pressed in the flank up under the rib, the other down through the abdominal wall.

The general health and history of the patient must not be lost sight of, nor must the examiner fail to look for albumin, tissue-structures, and casts, with the microscope.

With all these points, and others, which are not mentioned, in mind, a diagnosis can often be arrived at, but even now uncertainty may exist, and it will be found desirable to complete the examination with the cystoscope. The four cases reported illustrate four types of hemorrhagic trouble, and have been under my care during the last three months.

Case I.—Mrs. T., age twenty-three, seen through the kindness of Dr. Winter, her family physician. Father and mother in splendid health, and other family history good; personally, has been a robust girl, normal weight 120 pounds; was confined about a year previous to my seeing her; delivery normal; first noticed occasional hematuria and loss of strength the latter part of August; clots were passed, rather small and irregular in shape, and at times pure blood. The bleeding had become very free and almost continuous when I saw the patient February 5th; she was very anemic, and, although able to come to the office, quite weak, and she had lost twenty pounds of flesh; no cough nor symptom of general disease; could elicit no pain over the kidneys; passed water every few minutes, and the urine was mixed with pus and blood. These symptoms pointed to the bladder. Through the rectum I could feel nothing and resorted to the cystoscope for more light on this mysterious case, which I feared would prove tubercular.

I applied ten-per-cent. cocain-solution to the urethra, injected six ounces of water, after first washing out the bladder with a solution of boric acid, and a very clear picture presented itself. The summit of the bladder (mucous membrane) was red, and the capillary blood-vessels traversing the bladder, in various directions, were very beautiful. This condition is typical of a catarrhal cystitis. In

no other respect was the larger portion of the bladder at all normal, but when examining the trigonum there was plainly seen, near the opening of the left ureter, a spherical grayish mass, which, when the instrument was held quiet, gradually settled down, but when thrown into motion came into sight at the same spot as before as if held by a small pedicle. This was plainly seen at each of the sittings. The bleeding was in no way changed by examination, and a week later, after dilating the urethra, I introduced my index-finger and felt several soft papillomata, not, however, as large as I had expected from the cystoscopic picture. The summits of these growths were covered with a phosphatic deposit. After thoroughly curetting with a curette and my finger-nail, the pain and bleeding at once ceased. I have seen the patient a number of times since, and on May 26th she reported that there had been no pain nor hemorrhage since the operation; no loss of control of the urine; and, although she had had whooping-cough, she had gained sixteen and one-half pounds of flesh. There is still a slight amount of pus in the urine.

Case II.—Mrs. P., aged fifty-three. Family history good. Has always been strong physically, except for several years, has been subject to rheumatic pains and torpidity of liver. Saw her first February 4, 1896; stools clay-colored; conjunctivæ yellow; urine is slightly brown, and contains blood-cells. At times blood is abundant, at other times urine is perfectly clear. Patient has absolutely no pain, and only an occasional small blood-clot; no enlargement of kidney; very slight sensitiveness on deep pressure over right kidney. Exercise did not seem materially to affect the hemorrhage, as keeping her in bed for two weeks made little, if any, difference. Cystoscopic examination showed blood coming from the right ureter. First I gave ergot with no effect, then gallic acid with same result, and then I grasped the true condition and gave large doses of sweet oil and alkaline waters with the salicylates and colchicum, which resulted in a gradual return to health. March 24th, stools are normal in color, also the conjunctivæ. The urine is still bloody at intervals of several days. One passage may be clear, and suddenly, with no evident cause, the next bloody. No pain, appetite good, and weight normal, 140 pounds. April 6th, patient nearly well; is drinking large quantities of Geneva water.

May 25th, perfectly well; urine normal since last report; fingers and toes slightly swollen—gouty, I believe; rides her wheel as easily as ever. My diagnosis in this case was that in a gouty individual there was catarrhal occlusion of the bile-ducts and congestion of the liver and kidney, with rupture of the small vessels in the kidney.

Case III.—April, 1896. Mr. P., aged twenty-nine; carpenter; married eighteen months; father and mother healthy. Three years ago he had malarial fever, since which time he has passed urine frequently. He first noticed hemorrhage before marriage; no venereal history. At first bleeding was slight and lasted about a week. During warm weather he has comparatively little hemorrhage, but it is severe when he is chilled. He now urinates every two hours; no clots. Blood well mixed with urine, sometimes red, at others, brown; pain over both kidneys, although not of the same severity at all times. Pain and hemorrhage have been continuous for three weeks; pulse, 116; temperature, 98.6°; very thin, and has slight cough. Patient is extremely nervous, has twitching of the eyelids, and can sit still but a few minutes at a time. Cystoscopic examination, under influence of cocain, produced very little pain, and no bleeding followed, although the bladder was irritated with the back of the instrument. Examination negative. Dr. F. Maas had previously found tubercle-bacilli in the urine. Diagnosis, renal tuberculosis.

Case IV.—Mr. M., aged seventy-two. General insurance. April 10th. Three years ago I treated Mr. M. for a severe colic (renal). He recovered nicely, and one year ago had an attack of hematuria lasting for a few days only, and believed to be the result of acute renal congestion from a cold. A week ago he had what he thought was blood in the urine in the morning. In the afternoon he came to me and the urine was perfectly clear, with no albumin, casts, or cells present. Urine passed at office yesterday, six days later, was slightly cloudy, and this morning reddish-brown, with much albumin, blood, and tissue-cells present. Sound detected nothing in bladder, but right kidney is enlarged, reaching nearly to crest of ilium, hard, and nodulated, but freely movable. In general condition he is thin and very anemic. Has been growing weaker for several months, but has been attending to office duties.

Later in April Mr. M. had a severe attack of pain, during which the pulse went down below 50, and became very weak and irregular.

Diagnosis, carcinoma of kidney, but on account of his age and anemic condition an operation was not urged. Dr. McGraw of Detroit and Dr. Henrotin of Chicago concurred in the diagnosis and advice.

MEDICAL PROGRESS.

Operation for Luxation of the Peroneal Tendons.—Tendon-luxations are rare conditions, but when they do occur they are troublesome to treat. The peroneal tendons are most apt to be affected on account of their length and the angle at which they bend about the external malleolus, this being about 160°. If the groove in the bone is shallower than usual a predisposing cause exists which can be overcome only with difficulty. The tendons slip out under the influence of a sudden strain in the positions of abduction, pronation, and extension. There is a tearing sensation as the fibrous sheath gives way, and walking is possible, though painful. Rest and bandaging for five or six weeks may serve to reëstablish the tendons in position, but relapse is likely to occur. For habitual cases operation offers the only hope of cure. The tendons have been kept in place by an artificially stitched sheath, and in one instance the periosteal groove was divided and reflected, the groove chiseled deeper, and the periosteum replaced. But a much simpler and very ingenious operation has been devised by Kousmine of Kazan, and a case upon which it has successfully been employed is reported in the *Revue de Chirurgie* for September, 1896, by his assistant, Perimoff. The periosteum of the external malleolus

is first exposed and then a narrow trapezoid piece of periosteum and bone is elevated into a perpendicular position. The base of this flap is the posterior margin of the external surface of the external malleolus. The dressing of plaster of Paris was changed on the seventeenth day, the nails removed, and a new splint applied. The recovery was such that the patient, who had been prevented from walking by pain and lack of control over his foot, occasioned by the constant slipping of the tendons, was enabled to walk without discomfort and the tendons did not again slip out.

Operative Surgery in Phthisis.—In an article published in the *Mittheil. aus d. Grenzgebiet d. Med. u. Chir., Bd. I, Heft* 2, QUINCKE discusses the pros and cons of operations upon the tuberculous lung. The following procedures have been employed: (1) Aspiration of abscesses and injection of medicinal agents have been performed rarely and with doubtful results. (2) In ten cases an abscess-cavity has been opened and drained. In one case only was the operation carried out in two stages. In only three of these ten cases did the wound heal. In others a sinus persisted, or the patient died of extension of his disease, or was lost sight of. In several instances drainage was unsatisfactory on account of the situation of the fistula. (3) Excision of the affected portion of the lung has been performed by Lawson, Tuffien, Reclus, and Doyen. This is a dangerous operation, and even if successful the prospect for radical cure is remote. (4) In light of this experience the author recommends an operation intended to favor the spontaneous closure of an abscess-cavity. Such operative assistance has been rendered in two instances in which the surgeon has resected portions of the neighboring ribs without opening the cavity. The hope was that when the bony, resisting thorax-wall was removed from over the abscess, cicatricial contraction in the lung would be found. One of the patients operated upon was cured, and the other showed an improvement, but died ten months later during the administration of chloroform previous to the opening of a new-formed abscess. Quincke recommends this last form of operation.

THERAPEUTIC NOTES.

Croup and Diphtheria in Austria.—The Vienna correspondent of the *Münchener medicinische Wochenschrift*, June 30, 1896, p. 625, relates that during the month of February, 1896, 4424 cases of croup and diphtheria occurred throughout the whole of Austria, with 982 deaths—22.1 per cent., and 895 remaining under treatment. Among 1128 of this number treated with the antitoxic serum there were 149 deaths—13.2 per cent., while among 1849 treated otherwise there were 704 deaths —38.1 per cent.

The Treatment of Diphtheria With Antitoxin.—DUPUY, (*Progrès Medicale*, 1896, No. 27, p. 3) relates that from the year 1889 the mortality from diphtheria at Saint Denis gradually declined until 1893, when it commenced again to rise. During the first three quarters of the year 1895 there occurred only twenty-six cases, with three deaths. In June and September there were no cases at all. In October there were three, in November seven, and in December twenty-four. In January, 1896, there were sixteen. Of these last fifty cases diphtheria-bacilli were found in forty. These cases were isolated and treated with the antitoxin, with a mortality of fifteen per cent., as compared with previous records of sixty-six per cent. The six fatal cases were all of grave type, and would have elicited an unfavorable prognosis under any treatment.

Protogen is the name given by BLUM (*Berliner klinische Wochenschrift*, 1896, No. 27, p. 601) to a group of soluble, incoagulable albuminoid bodies, prepared synthetically by the action of formaldehyde upon serum-albumin and ovalbumin. A study of ovoprotogen shows that this substance is readily absorbed and well tolerated, and that it is capable of acting as a source of heat and of nitrogen for the body. It has the great advantage over ordinary albumin of being soluble in hot and cold water. Experiments upon dogs show further that by means of the subcutaneous use of protogen it is possible to maintain the bodily nutrition for at least a considerable time.

Incontinence of Urine and its Treatment by Suggestion. As the result of a clinical study CULLERRE (*Archives de Neurologie*, 1896, No. 7, p. 1) has reached the conclusion that essential incontinence of urine in children and adolescents is a neuropathic stigma, in general, benign but which may be at times the precursor of nervous disorders more or less grave, as neurasthenia, hysteria, hypochondriasis, mental obsession, with preoccupations, or fixed ideas, relative to the urinary function. The patients usually belong to families in which the neuropathic tendency appears in various forms, but not especially as mental alienation. They often display evidences of degeneration, physical and moral. Incontinence of urine is transmissible by heredity. Incontinence of urine is the result of a psychic disturbance similar to that observed in hysteria. The mechanism of the development of this morbid phenomenon appears to consist at the beginning in a sort of cerebral distraction. The center controlling the act of micturition fails in its function, or is uninfluenced by the medulla, or is, perhaps, inhibited by some peripheral excitation. This phenomenon, impressed upon the imagination of the subject, induces constant preoccupation which enters into the subconscious psychic sphere and provokes autosuggestions or impressions that aggravate the disorder and increase the frequency of its occurrence. Hypnotic suggestion is the most rational as well as the most efficacious mode of treatment, leading to recovery in seventy-five per cent. of cases. The degree of hypnosis is of little significance. A state of simple psychic passivity, with the eyes closed, may be sufficient. The treatment is efficacious at all ages, but the result appears to be the more certain the older the patient. Even in those not cured the influence of suggestion is evident, but it is neutralized by autosuggestions. In these patients the nervous disturbance is more profound, and hysterical stigmata are often present. Medicinal or surgical treatment when efficacious is so through indirect suggestion.

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SATURDAY, NOVEMBER 21, 1896.

ROOSEVELT HOSPITAL AS A PRIVATE SANITARIUM.

"The Trustees of Roosevelt Hospital have completed and equipped a Private Patients' Pavilion for the treatment of surgical, gynecological, and medical cases under the most approved conditions. Care has been taken to furnish the rooms in such a manner as to render them cheerful, homelike, and attractive to those of the most cultivated tastes."

Such is the announcement which the trustees of this hospital have recently distributed generally to the medical profession and laity of New York. In accordance with the modern commercial custom of retail stores, and especially mammoth, omnivending caravansaries, an "opening day" is also announced, on which day "single rooms and rooms *en suite*" will be on exhibition. "You and your friends, ladies included, are cordially invited to visit and inspect."

In all candor and honesty of motive we humbly ask in the name of public charity what imperative exigency can induce the managers of a great public hospital, built and endowed with money consecrated to benevolence and charity, to use those funds to build and equip sumptuous accommodations for the wealthy classes, who alone can afford to occupy them? And with equal sincerity, in the name of the medical profession, we ask why such inducements should be held out to private patients to leave their usual medical adviser for the purpose of securing these luxurious accommodations?

THE DISSEMINATION OF SYPHILIS.

Bayet has been investigating the origin and spread of syphilis in Brussels and, at the last annual session of the Royal Society of Medical and Natural Sciences of that city, he reported his conclusions, which may well be called startling. In Copenhagen and Berlin, where exact statistics of the disease are kept, there are over four new cases annually to every one thousand of the population. And since most of these are about twenty years of age, they may be said to have an average of thirty years yet to live, which would place the figures for the total syphilitics of Berlin at any one time at 150,000, a tenth of the population. When one considers also that many cases are never treated, and that from one-fourth to one-fifth of cases of tertiary syphilis deny all acute symptoms, it is no wonder that Bayet concludes that syphilis holds the second place as a cause of sickness—surpassed only by tuberculosis.

In 114 instances of recent syphilis which came under his personal observation in Brussels, the history of contagion was obtained, and in only thirty per cent. was it found that the syphilis had been acquired from prostitutes, while in fifty per cent. it was obtained from waitresses in cafés, and women who were described as being "off color," *de mœurs légères*," though not subject to police inspection. In the remainder of the cases the infection was attributed to wives, mistresses, and others.

Bayet is of the opinion that if the class of women (waitresses, etc.), which stands on the border line of prostitution, and which was responsible for the infection in half of his cases, could be brought under governmental supervision, syphilis in Brussels would diminish. This does not seem so clear from his own figures, for the low percentage of cases derived from prostitutes seems

due not so much to their freedom from the disease, as to their small number, for, at the time of his investigation, there were only 200 in the whole city, while the number of women in his second group must have exceeded that figure many times.

FILTRATION AND THE LOUISVILLE WATER-SUPPLY.

Dr. W. D. White, Health Officer of Louisville, has published a small pamphlet—a reprint from the *American Practitioner and News*—in which he discusses the necessity of filtration in the treatment of water-supplies derived from the great rivers. He says of the supply of Louisville, taken from the Ohio River, that in its unpurified condition it cannot be classed among safe potable waters. Before it reaches Louisville, the Ohio River receives the sewage and surface-drainage from many cities and towns, aggregating a population of, probably, two millions of people. The result of this contamination is forcibly illustrated by the vital statistics compiled from official reports of health departments. Of the three principal cities taking their water-supply from the Ohio River or its tributaries, the death-rates from typhoid fever are reported to be, for the calendar year 1895, Pittsburg, 77 per 100,000 population; Cincinnati, 36 per 100,000 population; Louisville, 77 per 100,000 population.

On the other hand, in New York, Boston, and Brooklyn, which depend upon impounded water gathered in large reservoirs and carried in storage for many months, the typhoid-fever death-rates are by the last reports: New York, 17 per 100,000 population; Boston, 28 per 100,000; Brooklyn, 16 per 100,000 population. And in Vienna and Munich, where the water is obtained from springs in mountainous districts, the death-rate from typhoid is reduced to 7.0 and 7.1 respectively per 100,000 population.

Sedimentation and filtration may not furnish chemically and bacterially pure water, but, viewed from a practical standpoint, water thus treated will be so purified and disease-germs so much arrested that at present this method commends itself as the best means of purification. The introduction of filters at Hamburg is credited with reducing the death-rate in typhoid fever from 28 to 6 per 100,000 population. After the filters of the London waterworks were operated to meet the requirements of a bacteriological standard, the typhoid mortality was reduced from nearly 90 deaths per 100,000 of population for the decade 1860–70, to 24 for the decade 1870–80, to 19 for the decade 1880–90, and finally to 15 per 100,000 of the population for the period of 1890–94. In the recent discourse by Dr. Frankland before the Royal Institute of London, referring to the uniformly excellent filtration that had been reached in the water-supply of London since filtration was made compulsory in 1856, he said: "The effect of sand-filtration, as carried out by the London water companies, upon the living matter contained in raw water was simply astounding. A single drop of unfiltered Thames water sometimes contains nearly three thousand separate living organisms, but after filtration, only two or three can be found, and sometimes the filtered water is absolutely sterile." Mr. Hazen, late chemist of the Massachusetts State Board of Health, states: "In parts of Germany where the water is of exceptional purity and under governmental control, typhoid fever has nearly ceased to exist." The change of source from the two-mile to the four-mile intake-crib of the Chicago water-supply reduced the typhoid-fever death-rate from 104 in 1892 to 42 and 31 in 1893 and 1894 respectively, per 100,000 population.

The Louisville Water Company is at present making tests of the various systems of filtration, and is exhibiting a commendable desire, by persistent and intelligent investigations, to ascertain the best method of purification, with the purpose of constructing a filtration-plant that will supply a quality of water equal, as far as practicable, to that of any large city in the country. It is somewhat startling to know that Louisville still has such antiquated facilities as wells and pumps, of which there are 653. Their condemnation and destruction cannot come too quickly.

RECENT PROGRESS IN DERMATOLOGY.

ALOPECIA AREATA.

Is alopecia areata a nervous disease of the scalp, or is it due to a parasite? This question has been much discussed, and now Sabouraud, to

whom we owe so much for his investigations of ringworm, endeavors to answer it in a series of papers in the *Annales de Dermatologie et de Syphiligraphie*, 1896; vii, 253, et seq. He firmly believes that the disease is contagious, and that barbers' instruments are the most common carriers of the contagion; but as customers come and go from one barber to another, it is difficult to trace each case to its source. Starting with the theory of the microbic origin of the disease, Sabouraud has worked out a strong chain of evidence in its support.

He tells us that the typical hair of alopecia areata is found at the edge of an advancing patch, and is a stump of long hair that has remained in the scalp. It is club-shaped, or like an interrogation point. Its diameter becomes less as we go toward the root, and its color is lost. These hairs are always a sign of an advancing patch, and are not found in old patches. The medullary canal of these hairs is normal above, altered in the middle, and completely wanting at the root. The root is not bulbous and hollowed for the papilla, but in the form of a turnip. The fact that the hair changes from above downward, from a normal to a lanugo hair, is evidence that there is a progressive atrophic change in the papilla. Clubbed hairs are seen in other diseases of the scalp, but they are not friable like those of alopecia areata, in which the hairs split both transversely and vertically. In the frayed and broken hairs we often find the microbes commonly found in seborrhea. These are not the cause of the disease.

A study of the terminal period of the disease, when the hair tends to reform, shows that many hair-follicles have completely disappeared. Around the remaining ones the connective tissue is thickened, crowded, strewn with connective-tissue cells. At the base of the old follicle there are a great number of flattened, degenerated cells—*mastzellen*. Many of the hairs are in process of regeneration, and about them the sebaceous glands are large, sometimes enormous. The pigment-function of the skin remains suspended until complete recovery of the patch.

In the stage of complete absence of hair, a sheath of migratory cells encloses each hair-follicle, giving the appearance of a special folliculitis causing the disease. A hard and dense connective tissue about the follicles is a further sign of an inflammatory process. About one-third of the abnormal cells are *mastzellen*, which are found through the whole preparation always about the vessels, and specially about the hair-follicles and sweat-glands. These indicate a trouble with the nutrition, and that alopecia is not a disease of the hair, but of the skin of the hairy regions. Microbes are rarely found except when due to irritant treatment. It is probable that the interference with the hair-formation is due to a toxin developed from a microbe, which may be present at a distant part. In the upper one-third of the diseased follicles, between the junction of the sebaceous glands and the follicular orifice, there is a very equal ampullar dilatation about three-tenths of a mm. wide and one-half mm. high. The follicular orifice is of the usual size. Its upper end appears like a cupola, pierced by a round window. The sides are formed by the follicular walls, whose mucous layers are extremely flattened and atrophied. Its lower end is rounded, or slightly conical. Just below it the excretory duct of the sebaceous gland and the follicular canal merge together. This formation, Sabouraud names the *utricule peladique*. He regards it as characteristic of the disease, specially in its earlier stages, as when actual baldness sets in the shape of the utricule is already deformed. As we pass away from the bald area out into the surrounding skin, follicles in course of renovation become less numerous, and dead hair with full bulbs more abundant. Utricules that are full and closed are found among the sound hairs. They are filled with joined strata of epidermic cells, and contain in their centers, like a larva in a cocoon, compact clusters of microbes, a pure culture of the smallest bacillus known. It is constant in the utricule, and is named the microbacillus of the *utricule peladique*. It is almost punctiform in size. As it grows old it may be one-quarter mm. wide and one-half to one mm. long, and comma-shaped, or bent. The young bacilli are a little swollen in the center, and their ends are blunt. Usually they are neither agminated nor in chains. Each utricule contains millions of them. As long as the tops of the utricules re-

main uninjured the bacilli remain pure, otherwise there is a mixture of microörganisms. Exceptionally they are found in follicles that contain some remains of hair, but they rarely come into contact with the hair. This bacillus is regarded as the probable cause of the disease.

Sabouraud's theory is that the hair-follicles are invaded by this bacillus and the utricule formed. In a few days reaction about the utricule shows itself by the afflux of round mononuclear cells, which form irregular strata about the same. Then a mass of the same sort of cells collects about the vessels, from which they escape by diapedesis. Soon the follicles, both within and without the utricule, become surrounded by a thick mass of the same sort of cells, mixed with which are some *mastzellen*. Then progressive atrophy of the hair-follicles takes place, the papillæ die, and the hair is expelled. Now the utricule has lost its proper microbe, and becomes the habitat of various microbes. After a variable time the process ceases, and restitution may take place. This course of events shows the uselessness of local antiseptics in treatment, as when the bald patch is present there are no proper bacilli to act on. It indicates the usefulness of revulsives to hasten regeneration of the hair, and of epilation about the patch, and disinfection of the skin in the neighborhood of the patches.

It is not claimed by our author that this bacillus is proven to be *the* cause of the disease, but only that it is the *probable* cause. Certainly suggestive of the casual connection is the fact that it is abundantly present during the spread of the disease, and disappears when baldness is established. At present it cannot be distinguished from that of Unna and others, which is found in comedo, acne, and fatty forms of seborrhea.

This contribution of Sabouraud's is one of the most important of recent years. Of late the opinion has been gaining ground that in some cases alopecia areata is contagious, and probably parasitic. If his observations are found to be correct by the investigations of himself and others, we shall have another disease to add to our growing list of parasitic diseases, and a clearer idea of what we must accomplish therapeutically.

George Thomas Jackson, M.D.

ECHOES AND NEWS.

Starvation in London.—Seventy-one persons died of starvation in London, England, in 1895.

Long Island College Hospital.—The Chair of Medical Jurisprudence in this institution has been accepted by Judge Willard Bartlett, in the place of the late Judge Calvin E. Platt.

Newark's New Hospital.—The city hospital which Newark proposes to erect, at a cost of nearly $300,000, will be built very soon, as the contractors' estimates are now in the hands of the building committee.

Sir William MacCormac.—Sir William MacCormac, who has been ill with pneumonia, continues to have fever and suffers great prostration. His illness is a source of much anxiety to his many friends and admirers.

Cerebro-spinal Meningitis in Berlin.—For several years Berlin has enjoyed a respite from the ravages of meningitis, but during the last few months it has reappeared, and is attracting the studious attention of her physicians.

Colored Nurses.—The New Orleans University Medical School has in contemplation a plan for establishing a training-school for negroes. The suggestion has received cordial support, and there are good reasons for believing that the undertaking will succeed.

The Stille Medical Society.—The Stille Medical Society of the University of Pennsylvania has in press an elaborate history of its work for the last twenty-one years, and complete statistics of its members, among whom are some of the most prominent of Philadelphia physicians.

Another Object-lesson.—In Spain there exist no laws making vaccination against smallpox compulsory, and in consequence her capital is now sorely afflicted with this disease. The chief fatality occurs among young children, in the majority of whom vaccination has been wholly neglected.

Aldermen Blocking Sanitation.—The Brooklyn Board of Aldermen has refused to approve the bill of $7000 which Health Commissioner Emery contracted at the direction of Mayor Wurster during the warm weather, when he was obliged to employ experts to examine into the condition of the water.

The Mutter Lectureship.—The thirteenth course of the Mütter Lectureship, consisting of ten lectures on surgical pathology by Dr. Oscar H. Allis of Philadelphia, began in the hall of the Mütter Museum, Philadelphia, on November 18th, to continue till December 16th. The subject is "Dislocation of the Major Joints."

Rinderpest in South Africa.—The Governor of the Cape Colony has engaged Professor Koch, the bacteriologist, and Dr. Kohlstocher, the German medical adviser for East Africa and the tropical malaria regions, to go to South Africa to investigate the causes of the rinderpest, which has become wide-spread in South Africa.

A New Chemical Element.—M. Barrière believes that he has discovered a new chemical element in the course of his investigations in monazite-sand, and has named it lucium. It does not form insoluble salts when coming into contact with either sodium or potassium sulphate. Its spectrum resembles somewhat that of erbium.

A County Sued for an Error in Diagnosis.—Agents of the County Health Board decided that Charles Schulz of Union Hill, N. J., and his family had smallpox, and sent them to the hospital for contagious diseases at Snake Hill. The medical authorities at the hospital discovered no symptoms of the disease, and Schulz now sues for $7000 damages.

Jenner Centennial Celebration in Russia.—The coronation of the Czar so preoccupied the attention of the Russian people that it was decided to postpone from May to December the centennial ceremonies celebrating the discovery of vaccination. The 3d of next month, accordingly, has been selected, and it is hoped that the Czar will publicly participate in the rejoicing.

The X-ray Surpassed.—It is unofficially announced in Paris and Vienna that a ray with far greater penetrating power than that of Röntgen's has been discovered by Professor Donneun de Syke. Photographs are said to have been taken through a plate of iron eight inches in thickness, and many other substances that are opaque to the X-rays offer very slight obstruction to the passage of this new form of radiation.

A New Scottish Medical Journal.—The desire expressed by Scottish members of the medical profession for a fuller representation of Scottish work and teaching in all departments of medicine has culminated in the determination to launch the *Scottish Medical and Surgical Journal* in January, 1897. It will be issued monthly, and will be edited by Dr. William Russell, assistant physician to the Royal Infirmary, Edinburgh.

Our Profession Unappreciated.—Many physicians in Russia charge only 15 cents for a consultation and, although their number is small, suicides are frequent among them, the cause being inability to make a living. It is to be hoped that not the least of the benefits to grow out of the approaching meeting of the International Medical Congress, at Moscow, will be an elevation of the medical profession in the estimation of this nation.

Jefferson Medical College.—Mr. William Potter who has just been elected President of the Jefferson Medical College and Hospital, at Philadelphia, was United States Ambassador to Italy during a part of the Harrison administration. He was born in 1852, was educated at the University of Pennsylvania and abroad, and for the eighteen years before 1892 was his father's partner in a large manufacturing business in Philadelphia.

Medical Students and Temperance.—The British Medical Temperance Association recently gave a breakfast to the medical students, at which all the medical schools of London were represented. Sir B. W. Richardson, who presided at this function, stated that within the last five months eighty-eight medical students had been enrolled as associates, and that all were total abstainers. A prize of £5 is offered by the association for the best essay by a student upon "The Action of Alcohol on Digestion and Nutrition."

Unnecessary Extravagance.—The Health Board of Paterson, N. J., has received permission from the Public Library to destroy all books belonging to the latter that are found at any time in the hands of those suffering from infectious diseases. It has been conclusively demonstrated, as shown by an article in the MEDICAL NEWS, August 8, 1896, p. 152, that books may be easily, quickly, and thoroughly disinfected by formalin-vapor. It is no longer necessary, therefore, to destroy valuable books that have been exposed to infection.

Obituary.—Dr. Thomas H. Burchard died in New York November 14th. He was the son of the late Rev. Dr. Samuel D. Burchard, and was born in New York in 1850. Dr. Burchard was a graduate of Bellevue Hospital Medical College, was for a time house-surgeon at Bellevue, and was surgeon of the Twenty-second Regiment. He was made chairman of the Civil Service Commission at its first organization in the State of New York. At the time of his death he was lecturer on surgical emergencies at Bellevue, and attending surgeon at the City Hospital on Blackwell's Island. As early as 1873 he advised the removal of the vermiform appendix in acute perforative perityphlitis.

Cottages for the Insane.—The contract has been let for the erection of seven cottages at King's Park, L. I., for the reception of the insane patients who now overtax the capacity of the Long Island State Hospitals. The so-called cottages are to embody the most modern ideas in the facilities furnished for the care of mental patients, and their appointments will leave nothing to be desired from a scientific and sanitary standpoint. They will accommodate 864 inmates, and are to be completed in about eighteen months. According to the agreement made by the Commission in Lunacy, the Flatbush Asylum must be vacated in five years, which will probably lead to an extensive use of the cottage-system if the present experiment proves the promised success.

A Tribute to Vaccination.—Another proof of the value of vaccination comes from the Indian School at Carson, Nev. When the school reassembled in the fall of 1895, it was found that several pupils had, during vacation, been exposed to smallpox and had returned to school before it had developed. Every one in the school was immediately vaccinated, and the two pest-houses, hastily constructed, were soon filled with twenty-three patients. As many more with a mild form of the disease were cared for in the school-hospital. Many were quite sick, and yet not one case was fatal, and the school was continued throughout the year. Later came an epidemic of la grippe, which in six cases developed into consumption, of which four have died, and the other two can live but a short time.

The Estimate of Ginseng in Asia.—*The Lancet* is authority for the following statements concerning ginseng: It is regarded as the panacea throughout Eastern Asia, and is esteemed as a universal remedy, far above powdered tiger-teeth, the scrapings of young deer-horns, or even broth made from dog's flesh. Ten large and eight small sticks of ginseng, weighing collectively nine and one-fifth ounces, cost in the Chinese market nearly $1700. The wild plant is preferred, and is worth its weight in gold. Chinese farms devoted to its culture are most carefully supervised by watchmen employed night and day. A decoction is made from the root that is prescribed in all cases of debility, but it is chiefly prized for its aphrodisiac effect. A fortune awaits the enterprising American who will furnish the Chinese market from the abundant fields of our Southern States.

Unhealthy City Bake-shops.—The Bureau of Statistics of Labor of the State of New York has just issued its thirteenth annual report, which deals at more length with the bake-shops in New York City particularly than any other branch of industry. The report says that fevers, contagious and uncontagious, prevailed among many of the bakers who worked in basement- or cellar-bakeries; that most of the latter were unhealthy, and many of them very filthy. Since 1895 there has been legislation which tends to remedy some of the evils complained of. No new cellar-bakeries can be established, and there are laws regulating the sanitation, height of ceilings, hours of work, and other matters. The Board of Health of San Francisco is making vigorous efforts to remedy the same evil. It would seem that the dirty bakery, with its attendant evils, is the rule rather than the exception.

Bacteriology as a Regular Part of the Curriculum.—A very spicy bit of writing is the following, in the London *Lancet*, by a "General Practitioner"—not that he loves bacteriology more, but that he loves the medical politician less: "Bacteriology has been revolutionizing surgery and medicine for the last twenty-five years, but its study is not yet included in our curriculum, and the demand for its inclusion even now sounds rather like the voice of one crying in the wilderness. The threatened creation of a handful of opponents in the shape of registered midwives raises a prompt and spontaneous whirlwind of agitation. We are too commercial, and much too unscientific, or our souls would be stirred more over bacteriology and less over midwives. It is almost incredible that a subject of such vital importance should remain unrecognized so long. Will our grave and reverend seniors wake up of their own accord, or will they wait for the great British public to shake them?"

Street-cleaning and the Press.—Most men with a mission are misunderstood by the tradition-ridden public, and not infrequently are held to account for the deeds of fanatical followers, for which they are not directly responsible. In the criticism of Commissioner Waring given below, the New York *Press* would have been more in accord with reliable observation had it avoided the insinuation of incapacity on his part: "The Anti-Rubbish Association's work is possibly of sufficient aid to the Street-cleaning Department to warrant Colonel Waring's tribute of 'immense.' But is it desirable, even in aid of so worthy a cause, that little children should pick up the decayed vegetables and other dangerous objects with which his department is unable to deal?" Whatever varying opinions may be entertained as to methods, no champion of cleanliness, no advocate of sound sanitation, and certainly no observant physician, would withhold the just meed of praise from a department bravely battling in a cause that makes, more than all else, for our municipal purity, prosperity, and progress.

CORRESPONDENCE.

THE FRENCH SURGICAL CONGRESS.

PARIS, October 26, 1896.

Last week the French Surgical Society held its tenth annual session here and discussed some of the questions that are interesting French surgeons just now. One is, and yet is not, surprised to find that the general topics of discussion are about those that would come up under the same circumstances in the United States, though a patriotic American cannot help feeling that it is the more advanced phases of these same surgical questions that divide opinions with us.

The President's opening address was on asepsis, its methods and technique, and its results. He hailed with pleasure its gradual substitution for antisepsis in France. The second day was taken up with a discussion of the treatment of clubfoot. There were many arguments pro and con regarding the employment of Phelps' method and modifications of it. As in Europe generally, French orthopedists are divided rather sharply into two schools. The one holds, as Martin of Geneva put it at the Congress, "that operations are almost never necessary for patients under ten years of age, graduated manipulations, properly directed exercise, massage, and electricity, with carefully fitted apparatus, being all-sufficient," or, as Redard insisted, "that operations for clubfoot are very much abused, and that all that is needed at most is forcible correction under an anesthetic and then apparatus." The other school was well represented by Championnière, a surgeon rather than an orthopedist, who removes or sections everything that will prevent correction, begins passive movement as soon as the wound is healed, and never uses apparatus. Professor Péan was almost alone in the opinion that the proper course was the happy medium between these extremes—the judicious blending of operative and mechanical procedures that is almost the universal teaching of American orthopedic surgeons.

Dr. Chipault of Paris described his method of "apophyseal ligature" for the correction of spinal curvature, whether kyphotic or scoliotic. He fastens a wire suture to the vertebral apophysis, just above the deformity, and then passes it successively around each of the displaced apophyses while the spine is extended by two assistants, one holding the patient beneath the axillæ, the other by the feet. The vertebræ are thus wired into position and careful precautions taken to keep them there until the

tendency to deformity is overcome. The procedure has given excellent results in rachitic and scoliotic curvatures and in the first stages of Potts' disease.

Dr. Larger (of Maison Lafitte) presented two patients on whom a new method of cheiloplasty had been performed. In one, from whom one-third of the lower lip had been removed for epithelioma, the result was excellent, and the patient could even *whistle*. In the other, two-thirds of the lower lip had been removed, and the functional result was perfect; the deformity was only slightly noticeable. He takes a flap from the upper lip by an angular incision to and from the ala nasi, making a new angle to the mouth. The procedure has been done on both sides by Guinard, after complete removal of the lower lip, with very satisfactory cosmetic effect.

Dr. Schwartz of Paris reviewed the twenty-four cases of successful suture of large veins so far reported, and added a case of suture of the lateral sinus done during the course of a trephining operation, with no untoward symptoms afterward, and every reason to believe that the sinus had been left patulous.

Dr. Abadie of Paris called attention to the fact that in exophthalmic goitre the vaso-dilators seem to be disturbed only in the region supplied by the cervical sympathetic, notably in the thyroid itself and in the exophthalmos. He suggests that these disturbances, as well as the tachycardia, may be due to irritation of the cervical sympathetic.

Dr. Jonnesco of Bucharest reported two cases of removal of the cervical sympathetic from the superior to the inferior cervical ganglion, inclusive. In both cases there was immediate amelioration of all the symptoms, and so far there has been no relapse. In neither case have there been any physiological symptoms caused by the removal, no anomalous sweating nor flushing, and no vomiting.

Dr. Kocher of Berne, in the discussion of Jonnesco's report, said that he had had a number of excellent results from the removal of the thyroid in exophthalmic goitre. Where the prominence of the eyeballs leaves the cornea unprotected and liable to slough, some operation like this should be tried.

On Friday Dr. Kocher did a radical cure for hernia by his method before the members of the Congress, at the Necker hospital. It commends itself by its simplicity and, as Kocher has reported six hundred operations for radical cure, the last two hundred without a death, and as a relapse is a rare thing in his practice, it is very generally interesting. He frees the sac and brings it out through a new opening made in the line of the groin, a little above the internal ring, and sutures it there. He thus obliterates completely the peritoneal fossa that normally exists at the orifice of the internal ring, and stretches the peritoneum tightly over the orifice by traction on the sac. He then simply sutures the wound made to expose the sac. The operation takes but a few minutes.

After having used the Murphy button a good deal, most of the French surgeons are now using suture methods for intestinal anastomosis, and abandoning the button. This is especially true for gastro-intestinal anastomosis.

The last two days of the Congress were given up to the discussion of gynecology, and it seems to be as true in France as it is in America that

"Das Ewig-weibliche
Zieht uns hinan,"

for while many of the preceding sessions had been attended sparsely enough, the gynecological discussions were before a packed amphitheater.

The great question that divided opinions was, "Whether the vaginal or abdominal routes should be used in gynecological operations, especially as regards removal of the uterus." The greater safety of the vaginal operation makes it by far the most popular in France, and fibroid tumors that extend up to the umbilicus even are removed piecemeal through the vagina. It is not an esthetic operation to see; it is a bit of extremely hard manual labor to undertake in a warm operating-room; the general effect on vaginal tissues, as regards stretching and injury, must be worse than protracted, severe labor, but it gives excellent results, and is constantly growing in favor.

SOCIETY PROCEEDINGS.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting October 19, 1896.

JOSEPH E. JANVRIN, M.D., President.

CHARLES H. CHETWOOD, M.D., read a paper on

THE TREATMENT OF FOLLICULAR ABSCESS OF THE FOSSA NAVICULARIS WITH ATTENDANT FISTULA.

This condition, he remarked, was not at all infrequent. It was generally obstinate to treatment, especially when the fistula was complete, that is, had both internal and external openings. Of late he had developed a mode of treatment which had given very satisfactory results.

There were three classes of abscess of the fossa navicularis, accompanied with fistula, met with in practice, *viz.:*

1. Follicular abscess with blind internal fistula.
2. Follicular abscess with blind external fistula.
3. Follicular abscess with complete fistula.

The etiology of these three varieties was the same—all resulting from urethral inflammation. The first class was the one most frequently met with, as it was the simplest to treat. The third class was often the result of an unwise incision of the urethral canal.

The symptoms of this condition were those resulting from a contracted meatus, induration at the fossa navicularis, and more or less profuse purulent discharge. The precise nature of the fistula present in any given case could be determined by injecting into the urethra a solution of hydrogen peroxid and the use of a wire speculum.

In speaking of the prognosis of abscess of the fossa navicularis, with attendant fistula, most authorities dwelt upon the obstinate character of the affection, and Dr. Chetwood quoted the words of Morson on genito-urinary diseases to this effect. Having referred to the operative procedures recommended in the books, he proceeded to describe his own method of treatment.

The patient was placed in a recumbent position in a

good light. Artificial light with reflectors might be employed, but ordinarily sunlight was all that was required for the purpose. At this first sitting it was usually best to secure complete anesthesia by means of cocain hydrochlorate. After this was done the wire speculum was introduced. An incision was then made internally over the site of the peri-urethral swelling, after which the urethra, as far as the end of the speculum, was packed with absorbent cotton. An ethereal twenty-five-per-cent. solution of hydrogen peroxid was then injected into the interior of the sac. Effervescence having freely taken place, the speculum was closed and withdrawn, dragging out the absorbed cotton in its grasp.

In the subsequent sittings the same procedure, with the exception of the incision, was repeated, and after the first one or two it was rarely necessary to use the cocain. Toward the end of the treatment the strength of the peroxid-of-hydrogen solution was reduced to five per cent., and as the fistula gradually healed the peroxid was applied by means of a pipette. The pipette he employed was made from an ordinary glass medicine dropper, which was brought to a proper shape by the blow-pipe.

The time required for the treatment in different cases varied from two to six or eight weeks.

The intervals between the successive treatments varied from two to four days. His experience with this method had led him to conclude that with proper care and attention all cases should result in a complete cure. In patients with a tubercular tendency the treatment was apt to be somewhat more tedious than in others.

The ethereal solution of peroxid of hydrogen which he employed was a proprietary preparation known as hydrozone. It was formerly known as ozonic ether.

Dr. Chetwood then proceeded to relate briefly the histories of three cases, which illustrated the three varieties of abscess with fistula which he had described, and in conclusion stated that the permanency of the cure by this method seemed to be established by the fact that he had had the opportunity of observing a considerable number of patients at intervals of from three months to one year after the cessation of treatment, and in not a single instance had there been any return of the trouble.

DR. HERMAN F. NORDEMANN said that the results described by Dr. Chetwood were certainly very gratifying, but at the same time he believed that equally good results could be obtained by means of a much simpler procedure than that treated of in the paper. In cases of this kind he thought that all we had to do was to scrap the hardened follicle out with a curette. It seemed to him that Dr. Chetwood's method was too complicated, and that unless the operator was a specialist he would hardly be able to carry out the required measures properly.

DR. CHETWOOD said in reply that he had no doubt that in acute cases of abscess with internal and external openings, a cure could be readily effected by means of incision or scraping; but such acute cases he would hardly regard as instances of fistula. It was in the chronic cases characterized by marked induration that we met with real fistula, and it was in these that the method which he had described was applicable. Many of the patients had suffered from this condition for years.

In regard to the hydrozone, he said that he disliked very much to make use of or recommend a proprietary article; but in looking up the literature of the subject he had found that this preparation had been discovered as long ago as 1868, by Dr. Richardson of London, while making some experiments with peroxid of hydrogen. After nearly thirty years a manufacturing chemist had taken it up and put it on the market as his own. There could be no doubt, he thought, that the ethereal solution was greatly superior to the watery solutions of the peroxids.

HENRY ILLOWAY, M.D., read a paper on

CARDIAC DISTURBANCES FROM GASTRIC IRRITATION.

It was an established fact, he said, that organic disease of the heart is apt to impair the functions of the stomach, as well as those of the liver, kidneys, and other organs. It was also well known that in advanced stages of organic cardiac diseases any undue distension of the stomach will immediately produce very serious disturbances. It was not so generally recognized, however, that gastric irritation is capable of producing, by reflex action, functional disturbances—sometimes of quite a severe type—of a perfectly sound heart.

Dr. Illoway then proceeded to narrate a number of cases illustrative of this point. The first was that of a married lady whom he found, when summoned to attend her, suffering from severe headache, nausea, and great weakness. The history showed that in returning from a funeral she had, with a party of friends, stopped at a wayside public house and partaken freely of ham sandwiches, cheese, and beer. He found that the temperature was slightly elevated and the pulse 75, and intermitting. A careful examination of the heart revealed nothing more than this intermission at irregular intervals. From his previous knowledge of the patient and the history given, he came to the conclusion that the stomach was the organ at fault, and that the cardiac irritation was produced reflexly by the gastric irritation. Under a carefully regulated diet, at first consisting only of milk and lime-water in small quantities, and the use of minute doses of tincture of nux vomica and Fowler's solution, she rapidly improved, and on the fifth day the stomach having in great measure regained its tone, and the cardiac irregularity having entirely disappeared, the patient was allowed to eat a little broiled steak. At the end of a week she was up and about, and taking her ordinary diet. For nearly six years afterward this lady was under his observation, being attended in several confinements, and he always found her heart in excellent condition.

The second case was that of a married lady of thirty, who had had three children. When called to see her he found her very despondent. She had been in poor health for some time, and the practitioner who had been attending her had told her that she had heart-disease, and cautioned her against going out, as she might at any moment fall dead. The patient was pregnant again, being about five months gone. She vomited after every meal and frequently in the intervals. After eating she had a sense of

oppression and suffered from an embarrassment of respiration, which was relieved after she vomited. Her bowels were inclined to be constipated, her tongue heavily coated, and her pulse regular, but rather feeble. In pregnancy he believed there were ordinarily present some dilatations and hypertrophy of the heart, and, taking her condition into consideration, he found the cardiac dimensions normal. At the apex, which was somewhat pushed up, there was at times heard with the first sound a slight whistling or blowing, which did not seem to him to have the characteristics of an organic mitral murmur. The heart's action was somewhat feeble, but the other sounds were entirely normal. From the general appearance of the patient and the result of his examination he concluded that the heart itself was in good condition, and that the symptoms from which the patient suffered were due in reality to the stomach, although she made no complaints of gastric disturbance, and stated that she was rather a moderate eater. In the hope of gaining more light upon the case, he observed her while she ate her dinner, and found that she took large quantities of greasy food, which she rapidly bolted. A quarter of an hour after the conclusion of the meal she began to vomit what she had eaten. In the vomit he noted large chunks of meat, which she had swallowed without mastication.

With this evidence at hand he had no hesitation in pronouncing the stomach at fault. He thereupon assured the patient that her heart was sound, and instructed her, instead of remaining in the house, as she had been advised, to go out and get plenty of fresh air and exercise. He also directed that but a small quantity of food —of proper character—should be taken at a time, and that the meals should be frequent. Medicinally he prescribed for her constipation, and to assist digestion and tone up her stomach ordered Dufresne's pancreatine with her meals, and small doses of nux vomica four times a day. Under this treatment she rapidly improved and soon recovered her cheerfulness. In four months' time she was delivered of twins, after a very easy labor, and made a quick recovery. Some time afterward he made an examination of her heart and found it perfectly normal, the whistling murmur having entirely disappeared. The patient was first seen in 1880, and she had remained in good health until the present day.

The third case was that of a general freight-agent, aged thirty-seven, who had married at twenty and now had his second wife. He was very corpulent. Ordinarily his weight was 206 pounds, but at the time he was first seen by Dr. Illoway, September, 1891, it was 186 pounds. His mother had been dyspeptic and somewhat rheumatic; his father healthy. He himself had never previously been sick, but was inclined to nervousness. During the past six months he had suffered from attacks in which a cold perspiration broke out on his forehead, his limbs became cold, and the circulation seemed to stop in his legs. The pulse was feeble, there was shortness of breath, and he had pain over the precardia. A sensation of fright and anxiety came over him and he felt as if his heart would stop and that he was going to die. These attacks, which occurred frequently, were generally promptly relieved by a drink of whisky, which he kept constantly about him. Several eminent practitioners had regarded these attacks as angina pectoris. One had prescribed nitroglycerin, another nitrate of amyl, and a third digitalis.

The patient presented a doughy appearance of countenance, with a pallid color, which had something of a cyanotic cast in it. He did not eat much during the day, but was fond of late suppers, consisting of such viands as gooseberries, deviled ham, lobster salad, smoked tongue, and pickles, together with considerable quantities of beer. His bowels were regular and his urine normal. He complained of pain over the hepatic region, and a gnawing sensation in the epigastrium. A careful examination of the thoracic organs revealed nothing abnormal.

A rigorous diet was prescribed, beer was prohibited, but he was allowed a glass or two per day of old Rhine wine and a small amount of whisky. At first the only drug ordered was sulphate of strychnia, but afterward he was given small doses of blue-mass, with rhubarb, and, on account of his nervous condition, asafetida to the extent of ten grains a day. Still later he took phosphate of soda and tincture of nux vomica. At times the patient was greatly relieved, and the attacks were much less frequent and severe. Occasionally, however, he would indulge freely in rich foods and beer, and always paid the penalty in a return of his trouble. After one of his attacks, in which he suffered very severely, he was given a prescription consisting of subnitrate of bismuth, bicarbonate of sodium, nitrate of strychnia, and caffein. For the paroxysm, instead of whisky, he was ordered to take lactopeptin and capsicum. The treatment finally resulted in his complete cure. The last time that Dr. Illoway saw the patient was in March, 1894, and he said that he had never had a return of his former trouble.

The inhibitory influence on the heart of the great vagus nerve, which also had a large distribution over the stomach, was described in all the text-books on physiology. It was not difficult to understand, therefore, that an irritation of the gastric filaments of the nerve, being reflected upward to the center, would be reflected back upon the heart and produce more or less arrest of action. This was clearly shown in the well-known laboratory-experiment of inhibiting cardiac action by striking with the handle of a scalpel the base of the intestines of a frog. In regard to case No. 2, the manner of the production of the disturbance was not as clear as in the other two narrated. That a valvular murmur may be produced by merely functional disturbance was now well established; but whether the disturbance in this instance was due mainly to nervous action or to the local pressure of a disturbed stomach, it was not easy to decide. That pressure, however, would play a prominent part in a case like this, when the patient was well advanced in pregnancy, could be readily understood. The stomach was undoubtedly in a state of atonicity, and would distend more markedly, even with the same amount of food, than an ordinary normal stomach, and in the case under consideration would have a greater morbid influence than under ordinary circumstances. While cardiac disturbance of an inhibitory character, due to gastric irritation, had not

as yet been reported, acceleration of the heart's action by reflex irritation from the intestinal tract had been noted, and this observation seemed to him to be of importance, as bearing upon prognosis, and also in relation to the matter of life-endurance.

DR. ROBERT NEWMAN said that the subject of the paper reminded him forcibly of some *post-mortem* examinations in which he had assisted as long ago as 1867. The autopsies were four in number. All were coroner's cases, and all were in large and corpulent men who had died suddenly. Two of them were very prominent citizens, whose death excited great surprise in the community. The observations of Dr. Illoway, he thought, offered a satisfactory explanation of these cases, which were otherwise difficult to understand. In none of these cases was there found any organic disease of the heart, but in all of them the stomach was distended with recent meals. In all of them also there was considerable adipose tissue pressing upon the heart and the stomach. It seemed to him now that if these patients, when the attack which proved fatal first came on, had been given an emetic, their lives might have been saved. If relief was not given in proper time such patients would die suddenly.

DR. WM. M. LESZYNSKY inquired of Dr. Newman if the kidneys had been found to be normal.

DR. NEWMAN replied that, as far as he could remember, the kidneys, as well as the heart, brain, and other organs, were entirely free from disease. As these were all coroner's cases, he believed that the *post-mortem* examinations had been pretty thorough.

DR. ILLOWAY, in concluding the discussion, said that the interesting cases referred to by Dr. Newman went to corroborate what he had said in regard to pressure playing an important part in cardiac disturbance. He had a number of other cases in his case-book bearing on this subject, which he would be glad to present to the Association at some future time, and in further elaboration of the matter he would take pleasure in incorporating in the paper a reference to Dr. Newman's cases.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

The Ninth Annual Meeting, held in Nashville, Tenn., November 10, 11, and 12, 1896.

FIRST DAY—MORNING SESSION.

THE Association met in the auditorium of the Nicholson House, and was called to order by the President, DR. E. S. LEWIS, of New Orleans, La. An address of welcome was delivered by the Hon. John Bell Keeble of Nashville, which was responded to by President Lewis. There were fifteen new members elected, after which the reading of papers began.

The first paper was read by W. D. HAGGARD, JR., M.D., of Nashville, Tenn., entitled:

VAGINAL VERSUS ABDOMINAL SECTION FOR PUS IN THE PELVIS.

He recounted the transitional periods in the treatment of pus in the pelvis: vaginal puncture, superseded by abdominal section, and removal of pyosalpinx; total uterine castration per vaginam by the French, and per abdominem by the American school. They have reluctantly given way to modern vaginal section, and evacuation and drainage of all pus-pockets. The abdominal route affords visual inspection of the field. The attack on morbid masses can be made with safety to visceral integrity. If pus-accumulations are multiple, rupture and peritoneal soilings are avoided, that is the supreme advantage of the vaginal route. He had often seen the pelvis deluged with pus with impunity. He had also seen patients die within twelve hours from fulminant sepsis, from peritoneal contamination. The cases perishing from sepsis on the third day are classical. There is no way of distinguishing these cases clinically. All should be regarded as virulent. The writer referred to a mortality of 18.5 per cent. in a series of collected cases of laparotomy for pus, done in five metropolitan hospitals in the last year, and asked what must it be in the "unheard-from precincts," and in the hands of the great unwashed? The abdominal method offers the best approach in tubercular inflammation of the ovaries and tubes, and in small unilateral pus-tubes.

The author referred to the advantages of exploring the pelvis for retro-uterine tumors, inflammatory, and adnexæ by vaginal section. The geography of pus in the pelvis in most cases makes vaginal incision extraperitoneal, a minor procedure giving major results, without shock, risk, or disturbance in convalescence. Patients will submit to it who will refuse more formidable procedures. We can change the methods, but we can't change the patient. In prolonged sepsis from huge abscesses, posterior section and drainage are a life-saving procedure. The special indications are in (1) early cases of acute suppurating salpingitis; (2) incipient post-puerperal peritonitis; (3) large pyosalpinx and true pelvic abscess. The first group includes early gonorrheal and abortional cases. The essayist had incised a tense tube and let out serous fluid and curetted a gonorrheal case of a month's standing with pain, temperature, and tenderness for three days. The opposite tube was normal. In a week that tube became similarly affected, and was similarly treated. He believed those serous effusions in the Fallopian tube were the preceding pathological condition to pyosalpinx. If this is true and it is the embryonal history of suppurating salpingitis in early gonorrheal and other inflammatory cases, the prophylactic value of vaginal section will be the greatest boon yet given to infected woman. In puerperal cases, incipient peritonitis, and puddles of pus in Douglas' space imperatively demand incision. Should simple pus-letting in any of these cases not effect a cure, subsequent operation for removal of the relics of previous ravages can be done without the dangers incurred in the presence of pus. The field of vaginal section is to prevent suppuration in early cases, to anticipate it in puerperal cases, and to save life in desperate cases. It is simple, surgical, and safe. Its application to the pelvic inflammatory processes and to pus in the pelvis is one of the greatest surgical triumphs of the age.

DR. JOSEPH TABER JOHNSON of Washington, D. C., said that while the vaginal method had a great many

points in its favor and was being resorted to more and more in cases of large pus-collections in the pelvis, yet those who had been familiar for a considerable time with the abdominal route, could operate more conveniently and dexterously by this method and with greater safety to the patient than by the vaginal method. He could not agree with the speaker that the vaginal operation may be done without any risk or damage to the patient. Sometimes in operating through the vagina for the purpose of removing the uterus and its adnexa, or for large pus-collections high up in the pelvis, where it is necessary to manipulate the parts a good deal, and to do a thorough enucleation, the surgeon was likely to tear the intestine, the bladder, the ureter, or rupture a large vessel which is out of sight. In such cases the abdominal is much safer than the vaginal route. However, the vaginal method has much to commend it in cases of pus-collections that are low down in the pelvis.

Dr. Charles P. Noble of Philadelphia believes we should practise a judicious eclecticism. He did not feel that either the abdominal or the vaginal method possessed all the advantages, but if restricted to one or the other he should choose the abdominal rather than the vaginal route. An objection formerly urged against the abdominal route was the large percentage of hernias which followed this method. Only a week since he had tabulated the operations he had done for four years, which amounted to 397 abdominal cases, in which he had used the buried suture in closing the abdominal wound. Of this number seven of the wounds suppurated, while 390 healed by primary union. Of the seven which suppurated, one had a hernia. Of the 390 cases, one had a large umbilical hernia. Aside from these two cases, he has not had any hernias in his operative work for the last four years, particularly where the buried suture was used. If the patient is in a condition to permit the surgeon to do ideal work, the question of hernia was such an insignificant one that it might be left out of consideration. The matter of hernia following abdominal operations was one of the stock arguments against the abdominal method. The next objection raised against the abdominal method was the great amount of shock as compared with the vaginal. His experience has been that unless the gynecologist operates on the desperately bad cases, shock played a small *rôle* in abdominal work. He had had more shock following vaginal than abdominal operations.

Dr. Howard A. Kelly of Baltimore, said that whenever possible, pus in the pelvis should be treated by vaginal puncture or section posterior to the cervix, without sacrificing any of the uterine appendages. A large percentage of the cases thus treated would have no future discomforts. Illustrative cases were cited. One of the principal arguments advanced by advocates of the vaginal route in removing the uterus, tubes, and ovaries, was the excellent drainage that could be secured by this method. In Dr. Kelly's opinion it is unnecessary to take out the uterus to get drainage. By making an incision posterior to the cervix and breaking up adhesions, free drainage could be established.

Dr. L. S. McMurtry of Louisville said a deep impression had been made upon the profession in the last few years by the vaginal method of operating for pus in the pelvis. The procedure, however, was by no means a new one. Battey, in his original operations upon the ovaries, attacked the pelvic organs through the vault of the vagina. The method of attacking accumulations of pus in the pelvis by vaginal puncture and drainage, practised by Kelly as far back as 1889, was the universal practice of abdominal surgeons for a long time. The sacrifice of the uterus in the majority of cases of suppurative pelvic inflammation was unnecessary. While there were undoubtedly puerperal cases with suppurative pelvic inflammation, where it was necessary to remove the uterus, it was not so to such an extent as to make it a rule that this organ should be taken out. Surgery should be confined within the limits of removing only such diseased tissue or organs as are necessary for a complete cure.

Dr. J. Wesley Bovee of Washington, D. C., objected to anterior colpotomy in dealing with pus-cases, unless the accumulation of pus was on top and in front of the bladder. He thought these cases could not be drained through the anterior vaginal route, and the pus could not be reached in many cases. He believes it is not necessary to remove the uterus at the same time pus-tubes are taken out. He had seen cases where there was an abscess of the ovary, an abscess of the Fallopian tube, and another alongside of each ovary, with three separate cavities on one side. By draining one, a large quantity of pus could be evacuated, and perhaps in some cases this would be all that was required. He did not want to be understood, however, as being opposed to the vaginal route in very urgent cases.

Dr. R. B. Maury of Memphis had during the last two years made it his duty to study thoroughly the subject of vaginal hysterectomy, as he had done quite a number of these operations without any mortality, without any accident, or unpleasant results. But he would not undertake to say that we ought to substitute it for laparotomy. Both abdominal and vaginal hysterectomy were operative measures that surgeons must avail themselves of according to the circumstances of the case. Dr. Maury then cited the histories of two cases that he had treated within the last thirty days, which illustrated the advantages of the two methods.

Dr. W. E. B. Davis of Birmingham, Ala., said the practice of incising pelvic abscesses was so old that it hardly required discussion, but the method of attacking pus-tubes by vaginal section was comparatively recent. Unquestionably, vaginal incision for pus confined to the tubes and ovaries would save these important organs in a good proportion of cases. In all cases of large pus-collections in the pelvis, the only thing that should be done was to incise the abscess and drain, and then later on the surgeon should be prepared to do an abdominal section, but he would rarely find occasion to do this. Total ablation of the uterus and its adnexa was unnecessary in many instances in which it was practised by some surgeons.

A. M. Cartledge, M.D., of Louisville read a paper on

CHOLELITHIASIS,

in which he reported several interesting cases. He

pointed out the diagnostic indications for cholecystostomy and cholecystenterostomy, and considered the former as the only operation applicable to the cases cited. In his opinion there were no cases that primarily demanded cholecystenterostomy. He was not prepared to say that this operation with the use of the Murphy button was good surgery, nor that the button was free from danger.

DR. JAMES MCFADDEN GASTON of Atlanta agreed with the essayist that in ordinary cases of gall-stones in the gall-bladder, with obstruction of the cystic duct, the simplest procedure was to lay open the abdominal wall, attach the gall-bladder to the incision, and remove the gall-stones. But in a large proportion of cases of complete obstruction he doubted whether there would be restoration of bile through the cystic duct into the gall-bladder. Relative to the comparative value of cholecystostomy and cholecystenterostomy, the two operations were applicable to entirely different conditions. No one would operate and expect benefit from a cholecystostomy, except to establish drainage for the bile in a case of permanent occlusion of the common duct, and this was the only condition in which the advocates of cholecystenterostomy had ever claimed anything for it.

DR. JOHN D. S. DAVIS of Birmingham emphasized the point that patients frequently have gall-stones without symptoms, more particularly jaundice. He does not believe that it is ever wise to resort to cholecystenterostomy as a primary procedure. The surgeon should first resort to drainage, and then if relaxation does not take place and the flow of bile is not effected, a cholecystenterostomy should be done.

DR. GEORGE BEN JOHNSTON of Richmond, Va., spoke of the diagnosis of gall-stones. He is convinced that if examinations of suspected cases of gall-stones were as careful and minute as they should be, surgeons would frequently find them. It has been his experience that enlargement of the gall-bladder does not always occur when a gall-stone exists, but that a condition which simulates enlargement of the gall-bladder frequently does exist, this condition being due to the presence of numerous dense adhesions found in the neighborhood of the gall-bladder, glueing it to every tissue with which it comes in contact. One thing which struck him as very singular in connection with the presence of gall-stones was, that the size of the stone or stones seems to make no difference in the production of symptoms. In regard to hemorrhage, it is generally admitted that cases in which cholemia is profound are the ones in which we are to expect hemorrhage, and by no known method can this hemorrhage be successfully controlled. He considers cholecystostomy a proper procedure in all cases, except in those where the obstruction is in the common duct and cannot be relieved.

DR. W. E. B. DAVIS of Birmingham said surgery of the gall-bladder for the removal of gall-stones had given brilliant results, but there were still questions in regard to operative procedures on the ducts that were not as yet definitely settled. He did not believe the essayist referred to cholecystostomy as being the choice of operation in a case where the obstruction of the duct could not be removed; that he must have had in mind the procedure advocated by Murphy of resorting to this operation in a case of stone in the gall-bladder where there was no obstruction in the duct. Murphy resorts to cholecystenterostomy instead of cholecystostomy, and he thought the essayist did not intend to convey the idea that he would not do a cholecystenterostomy where the obstruction in the duct could not be removed. Cholemic cases were bad to operate upon. Perhaps in not more than five or six per cent. of the cases is the obstruction found in the common duct. Some years ago the author made experiments which conclusively showed that the surgeon could incise the duct and drain with gauze without peritonitis following this procedure. A paper on this subject was read by him before the American Medical Association in 1892, since which time he had done further experimental operative work in which sutures were not used after the stone was removed from the duct, and while several of the cases were already very nearly dead from cholemia and eventually died, yet in the cases in which this method was resorted to, the abdominal cavity was walled off and peritonitis did not result.

DR. GEORGE A. BAXTER of Chattanooga directed attention to the frequency of gall-stones unattended with the ordinary symptoms of pain or colic, and cited an illustrative case in which there were found, *post mortem*, three large stones in the gall-bladder.

DR. F. W. MCRAE of Atlanta cited a case in which there were repeated attacks of colic with profound cholemia. An operation was undertaken with the idea that the obstruction was in the common duct, and that there were stones in the gall-bladder. On opening the abdomen in the presence of several physicians, he found the liver much enlarged and reaching almost to the umbilicus; but instead of finding the gall-bladder enlarged, he found a fibrous cord not larger than his index-finger. The common duct from disuse was reduced to a mere cord. A calculus was found in the hepatic duct, extending up into the transverse fissure of the liver. He did not know what to do for a case like this, and after consultation with his colleagues closed the abdomen. The patient died five days later from exhaustion. If anything could be done for such patients he would like to know it.

(To be continued.)

BOOKS RECEIVED.

Transactions of the Medical Society of the State of New York, 1896. In this handy volume we find recorded not only the scientific proceedings of this society, but also much valuable information relative to its organization and membership.

Transactions of the Medical Society of the State of Pennsylvania, vol. xxvii, 1896. The proceedings of the forty-sixth annual session are here presented for convenient reference.

Transactions of the Association of American Physicians, vol. xi, 1896. The proceedings of the last meeting of this learned body occupy 450 pages, in which may be found the original papers describing many of the latest advances in medicine.

Index Catalog of the Library of the Surgeon-General's Office, U. S. Army. Second Series, vol. i. A to Azzurri, 1896. This volume includes 6346 author-titles, representing 6127 volumes and 6327 pamphlets. It also contains 7884 subject-titles of separate books and pamphlets, and 30,384 titles of articles in periodicals.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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ORIGINAL ARTICLES.

SOME RECENT ADVANCES IN THE TREATMENT OF ATROPHIC RHINITIS.

BY RALPH W. SEISS, M.D.,
OF PHILADELPHIA;
PROFESSOR OF OTOLOGY IN THE PHILADELPHIA POLYCLINIC.

THE intranasal disease characterized by progressive interstitial destruction of tissue, by the formation of deep erosions, the loss of ciliated epithelium, and the many sequelæ of nasal sepsis, is still the opprobrium of the rhinologist. Recent changes in nasal therapeutics have however added greatly to our controlling power in this disease, and results can now be obtained, which, in the writer's experience, were quite impossible a few years past. In a paper published in the MEDICAL NEWS[1] more than nine years ago, the present writer discussed certain methods which were new, and which had yielded good results in his hands, but the prognosis given was "the best that can be done in advanced cases is to palliate or improve, and cleansing measures must be continued at intervals throughout the life of the individual to insure no active return of the disease." At the present time, although no means have been found of replacing lost turbinated tissue, much greater control can be gained over the cirrhotic process, and in early cases a large amount of permanent comfort for the patient can be secured. Perfect cleansing ranks first in importance in the treatment of atrophic catarrh, but it must be secured by methods which are not irritating in character. It should be remembered that atrophic rhinitis is characterized by migration of leucocytes, their organization into cicatricial tissue, and the subsequent contraction of the same; by the progressive conversion of ciliated epithelium into that of squamous type, and by the general loss of procreative cell-power.

Any form of cleansing or other treatment, therefore, which tends to produce any of the changes is the reverse of beneficial. The nasal douche as ordinarily used is nearly useless, and exceedingly apt to cause disease of the ears and accessary nasal sinuses, and the various forms of nasal syringe so frequently recommended nearly all cause much traumatism, except in highly trained and judicious hands. The best means at our disposal for clearing the nose of crusts is by the preliminary use of hydrogen peroxid. It is the habit of the writer to use about one dram of the three-per cent. solution in each nostril, employing a glass atomizer. The immediate effect is to fill the nasal cavity with a mass of bubbles, which cause the crusts to become so friable that their removal by atomization is an easy matter. A suitable instrument, throwing a coarse, abundant spray, and a pressure of from twenty to thirty pounds, is required for the cleansing process. The formula used is unimportant, so long as it be alkaline and antiseptic; the writer generally uses solutions of boric acid, sodium borate, and sodium chlorid. The spraying must be continued until every particle of exudate is removed, and the entire intranasal membrane is cleared, many minutes are frequently required to obtain this result, crust after crust being removed in turn by directing the nozzle of the atomizer against it. All rough measures, such as lifting off the dry crusts with forceps, or their forcible removal by the syringe, invariably leave extensive erosions, the tendency of which is greatly to increase the epithelial desquamation, with corresponding injury to the patient. Should the post-nasal space be so blocked by crusts that they cannot be removed by spraying through the anterior nares, the post-nasal syringe should be employed. The best instrument is a small Eustachian catheter mounted upon a syringe of about three drams capacity. This is gently introduced behind the palate, and the medicament injected vertically with some force.

After absolute cleansing has been secured, the most important measure at our command in the therapeutic management of atrophic rhinitis is the use of massage. Much absurd literature has been written about this procedure, several writers have given the number of strokes per minute, which, in their opinion, was absolutely necessary to secure a favorable result, and very elaborate directions have been given regarding the instrument used, etc. The principle, however, is simply one of mechanical vascular and cellular stimulation, which must never be carried to the point of causing inflammatory changes. Perhaps the best method is to wrap an aural cotton-carrier with a firm, fusiform tuft of cotton, about one

[1] MEDICAL NEWS, April 2, 1887.

inch in length, by one-sixteenth in diameter. This, having been well oiled, is introduced into the nasal chamber and brought in rather firm contact with the mucous membrane, the whole area is then rapidly and systematically rubbed, great care being taken not to bruise or hurt the parts in any way. Hemorrhage is always an unfortunate accident, as the resultant clot is difficult to remove, and invariably acts as an irritant. Massage may be continued for from three to six minutes, varying with the tolerance of the patient. Slight reaction usually occurs, the membrane becoming much redder. Medical stimulants in the form of ointments are conveniently used along with the massage, europhen in the form of a five- or ten-per-cent. ointment, cinnamon-oil from five to fifteen per cent. in albolene, and oil-solutions of thymol, are the formulæ giving most satisfaction. Any one of these may be used, the cotton masseur being dipped into the oil, which is thus applied with much thoroughness to the whole atrophic area.

Another very valuable method of stimulation is the use of the faradic current; this is best used by means of a long nasal electrode which can be carried back through the nose to the posterior pharyngeal wall; the positive pole should be used in the nasal cavity, the negative—a large sponge-rheophore—being held against the neck, or in the hand of the patient. The *séance* may occupy from five to ten minutes, real discomfort being always a signal for its discontinuance. I formerly used this method extensively, but now use nasal massage in preference to it, as the latter is a more manageable, less unpleasant, and more generally useful procedure.

Stimulation by means of cotton tents introduced into the nose and allowed to remain one or more days (Gottstein's method), has never given good results in the hands of the writer. They certainly seem to increase the amount of the epithelial desquamation, and unless applied with great care and frequently renewed, tend also to cause inflammatory changes and increased sepsis. As a rule, they are greatly disliked by patients, and have been abandoned in my practice. It may be stated that all persistent mechanical pressure within the nose tends to remove ciliated epithelium, and is consequently exceedingly prejudicial in atrophic rhinitis.

Among drugs which have given good results as stimulants in the treatment of this disease, thymol, in my opinion, still continues in the first rank; it may be used in watery solution with alcohol and glycerin, but is much better employed dissolved in one of the petroleum-oils, albolene, glymol, or benzoinol may be used, the thymol being in the proportion of from three to ten grains per ounce. The former strength can be borne by most patients, the latter only by a few in whom tolerance has been established by much previous treatment. Frontal headache, lachrymation, or a severe stinging sensation in the nose should always be regarded as indications for the use of a weaker solution. Numerous drugs may be usefully employed in combination with thymol, among them menthol, pine-needle-oil, and eucalyptus, in the strength of from one to three per cent. Sanguinaria and galanga were once much used as stimulants in this disease, but they are exceedingly apt to act as severe irritants, and owing to this and their unpleasant taste have been largely abandoned. Next to thymol, europhen has given the greatest satisfaction in the writer's hands; it may be used in the form of an ointment, as above suggested, or of a dusting-powder in combination with stearate of zinc; or in advanced cases, where marked stimulation is required, the pure, powdered europhen may be used. Although slightly less efficient than thymol in the average case, it suits some cases better, is always less painful, and its use may be regarded as one of the distinct advances in nasal therapeutics. Aristol, iodoform, and allied compounds are also a benefit, but have more disadvantages than the one first named. Cinnamon-oil has been shown to be the most decidedly antiseptic of the volatile oils, and is particularly valuable in conditions of nasal and pharyngeal sepsis; it may be used in the form of a spray, from three to ten per cent. being added to the ounce of albolene. It appears to be entirely unirritating, produces a grateful feeling in the nose, and its odor is pleasant and not persistent. Whichever oil-spray be employed, it is essential that it be thoroughly applied to a perfectly clean mucous membrane, a suitable apparatus, and a pressure of at least twenty-five pounds per inch are essential.

Stimulation may be easily overdone in cirrhotic catarrh by drugs as by mechanical means. MacDonald observes that "it is somewhat doubtful whether we are any more justified in stimulating the nasal mucous membrane in atrophic rhinitis than a cirrhotic liver"—the warning and the pathological suggestion contained in this sentence are both exceedingly valuable. It cannot too often be reiterated that all violent measures in this disease defeat themselves, by causing the very pathological processes which they are intended to cure. Purely surgical measures have but a limited value in cirrhotic catarrh; dead bone must be carefully removed, the minimum of

disturbance of surrounding tissues being carefully observed. Nasal spurs, or similar obstructions, should not be operated upon, and turbinated tissue should not be removed, except under cases of absolute necessity, the constant tendency to cicatrization and contraction in this disease never being lost sight of. I have seen several cases in which extensive intranasal operations had appeared to light up the atrophic process, and all operations on the turbinated tissues are to be regarded as at least unfortunate necessities. Jonathan Wright[1] has had a similar experience, and forcibly points out how in vascular engorgement cauterization or other intranasal operation does not restore the efficiency of the damaged muscular apparatus, but by the formation of a scar favors the tendency to fibrosis. The use of skin-grafts as suggested by Laborderie, at first sight, appears to be one of the most valuable surgical measures that have been brought forward in atrophic rhinitis, the very essential of the disease being the permanent loss of epithelium. Unfortunately, the only available grafts which have been suggested are those which are covered by squamous epithelium, such as the intradigital membrane of the frog, whereas what is wanted is a membrane covered with columnar ciliated epithelium. The writer's efforts to graft such a membrane have all been total failures, and it is doubtful whether it is possible to obtain this very desirable result. Laborderie claims that nearly half the number of grafts made from the skin of the frog take effect, and advises the use of from ten to twenty grafts in all advanced ulcerative cases. Even if this admirable result could be obtained by the average operator, a surface covered with pavement-cells, and incapable of ridding itself of adherent mucus, would be the effect, and the patient would be no better off than before.

The internal treatment of cirrhotic catarrh is not satisfactory; the only drug which can be considered to have the slightest specific effect is iodin. This may be given in the form of iron iodid or of potassium iodid, and certainly, in some cases, appears to lessen the tendency to inspiration and to exert a beneficial influence on the course of the disease. Tonics are, of course, needed in many cases, and hygienic measures are naturally of the first importance. Climatic change appears to arrest the disease in a certain proportion of cases, and, when possible, should be tried, especially after local treatment appears no longer beneficial.

Perhaps the most serious danger of advanced cases of nasal atrophy and suppuration is aural complications. A large proportion of cases have recurrent attacks of acute Eustachian salpingitis, a certain proportion of these going on to suppurative disease of the middle ear and perforation of the membrana tympani. Especially is this the case where the nasal douche, snuffing fluid from the hand, or similar measures in which hydrostatic pressure is brought to bear, have been employed. Colonies of streptococci are thus easily forced into the Eustachian tubes, with the result of setting up suppurative conditions extremely prejudicial to the welfare of the patient. With a view to the prevention of these complications, cleansing measures should always be by some such method as has been advised. Patients should also be carefully warned to avoid forcibly blowing the nose, as in this way the Eustachian tubes are also frequently infected. The use of Politzer's inflation is even more dangerous, and should never be employed in cases of cirrhotic catarrh until absolute cleansing and antisepsis of the nasal cavities have been carried out. If suppurative salpingitis is already established, the most satisfactory mode of treatment is by means of the Eustachian syringe-catheter. This should be introduced through the nose, and the folds of the tube carefully washed out with a warm, mild, antiseptic formula, boric acid and salt being commonly used by the writer. Treatment should be continued daily for some time, the tympanum being meanwhile *carefully let alone*, unless already actually diseased. If the middle ear be already involved, antiseptic irrigation and, if necessary, an early paracentesis should be performed. Recurrent acute attacks of suppuration almost certainly result, sooner or later, in thickening of the drum and ankylosis of the ossicles in all neglected cases, and deafness and tinnitus aurium are almost the rule in such. It is believed that by the faithful use of some of the newer methods of treatment which have been above suggested, better results can now be obtained in cirrhotic rhinitis than could be secured by any of the older forms. The prognosis of this dread disease is still, however, a very gloomy one, moderate improvement being all that can be hoped for in any advanced case; but great comfort, freedom from odor, arrest of the disease, and avoidance of complications can all be secured by patient treatment extending over not a few weeks, but many months. What, above all else, the rhinologist needs is some method of controlling fibrosis—the fibroblastic process. The nearer we come to securing this, the more will our chronic cases improve.

[1] *Amer. Jour. Med. Sciences*, May, 1895.

EXOPHTHALMIC GOITER TREATED BY GALVANISM, WITH REPORT OF CASES.

BY RALPH R. SPENCER, M.D.,
OF GRAND RAPIDS, MICH.

DURING the past five years I have had my attention particularly called to the study of that obscure and little-understood disease, exophthalmic goiter. From the frequency with which I have met the disease, I am led to think that it is commoner than formerly, and consequently should receive our attention. Writers on the subject since have only confirmed the original observations made by Dr. Robert J. Graves, *viz.*, that the rapid pulse, exophthalmos, and nervous symptoms often precede the development of goiter.

Though there are certain districts where goiter is endemic, I am not aware that the disease now under consideration is prevalent there; it more often appears in places where true goiter is comparatively rare. It is more common between the ages of twenty and thirty, though occasionally seen in those younger or older. Judging from the observations of many writers, it would seem to attack eighty per cent. more females than males. In eighteen years' practice I have seen but one case in the male. It has been the opinion of observers that the disease is more dangerous and rapidly fatal in men than in women. It has been my observation that the disease develops rapidly; that there is generally a history of some preceding cause of debility, as continued hemorrhage and diarrhea, excessive fatigue from overwork, mental or physical. There are many cases on record which have developed suddenly after extreme mental excitement, exertion, or shock.

In my practice I have had but one death from Graves' disease, and was unable to get consent of relatives to an autopsy. Increased vascularity, slight hemorrhages, and abscesses have been reported; it has also been shown that division of the restiform body gives rise to symptoms closely resembling those of exophthalmic goiter. The most plausible theory, and that accepted by a majority of the recent writers, is the one which attributes the disease to a primary lesion of the thyroid gland. The symptoms of thyroidism bear a very close resemblance to those of exophthalmic goiter, as emaciation, sweating, rapid pulse, tremors, and exophthalmos have all been observed. The prominence of the eyes, I believe, is due to a dilated condition of the blood-vessels; there is no marked deposit of intra-orbital fat; in fact, emaciation and anemia of the orbital region is the condition found.

Prognosis should be very guarded in well-marked cases. Little improvement has followed any treatment; while in mild cases some are restored to perfect health, others live for years, but are never strong, and are subject to frequent relapses. It has been my experience that the heart-tonics, such as digitalis, strophanthus, etc., do harm. During the past three years desiccated thyroids have been largely prescribed for the relief of all forms of goiter. I have prescribed them in four cases, with no other result than poisoning my patients, causing headaches and dizziness.

Thyroidectomy does not grow in favor with those who have resorted to the operation, and should be resorted to only in extreme cases.

Like many others, having had indifferent results from therapeutical agents used in this disease, I have of late given up dependence upon them, and resorted to electrotherapeutic treatment. For fifteen or twenty years past the treatment of exophthalmic goiter by the galvanic current has been generally growing in favor. I have found that the rules laid down by Cardew[1] for the administration of electricity produce satisfactory results, hence I have adhered to them, with some trifling changes: (1) Galvanism is superior to faradism; (2) weak currents are sufficient, two or three milliampères (I give more—ten or twenty); (3) each application should last six minutes; applications should be made two or three times a day. The anode should be placed on the back of the neck, over the seventh cervical vertebra; the cathode should be moved up and down the side of the neck, from the mastoid process along the course of the great nerves. I have also used it with the two poles pressed to either side of the goiter; also with the positive pole over the goiter, and the negative over the solar plexus, continuing the current about five or six minutes in each place. A nurse, or any competent person, with training, can administer the treatment, the doctor seeing the patient frequently. One's first experience is apt to be discouraging, as frequent relapses, from various causes, are sure to interrupt the recovery or improvement of the patient. The patients are neurotic, and susceptible to trifling impressions; these are cases where patience and perseverance, both on the part of the physician and patient, are usually rewarded by marked improvement in nearly all cases, the symptoms gradually disappearing. Cardew states, and I am willing to bear him out, "that we have in electricity an agent powerful for good in the great majority of cases of Graves' disease."

[1] London *Lancet*, July 4, 1892.

Such cases as fail to be benefited by it are, unfortunately, extremely unlikely to derive much benefit from any other therapeutical agent. It is cheaper than drugs, it can be left in the hands of the patient more safely than continued doses of digitalis and belladonna, and it can be continued a long time without doing harm, should it fail in doing good.

The following is a report of my cases:

CASE I.—February 3, 1893, girl, aged sixteen, student, had been ill two or three days with what her family thought to be la grippe. Just before my call her symptoms became alarming. I found a pale, slender girl, with large goiter and eyes that protruded nearly from their sockets; heart beating so tumultuously that the motion imparted to the chest-wall could be seen from across the room, and its sounds heard at some distance from the patient. The pulse was 160 and the temperature 106°; respirations, panting and rapid. Sedatives, belladonna, and cannabis indica were given, and cool sponge-bathing ordered; patient made no improvement, but, on the contrary, grew worse; temperature increased to 108°; she became delirious, and before midnight died from exhaustion induced by hyperpyrexia.

I was unable to get a good history of this case, as she had not been regularly under the care of any physician. She had suffered from nervous symptoms, goiter, and protruding eyes for two years before her death.

I was also unable to obtain consent of friends to an autopsy. This being the only fatal case I have seen, I report it to show what the symptoms are at the end of such a case.

CASE II.—August, 1893, Mary L., aged thirty unmarried, seamstress, was anemic and of slender build; parents living and healthy. Symptoms, goiter quite noticeable, heart rapid, but exophthalmos was not marked. Prescribed iron and manganese pills and began treating the patient at once with galvanic current, treating her for twenty minutes every second day. This patient made rapid improvement, and in two months was so well that she discontinued treatment. I have seen her once during the past year, when she informed me that her trouble never returned. Her health has been good since taking the treatment mentioned. This case I did not consider a serious one, and the patient was treated early, also taking a much-needed rest, which, no doubt, contributed largely to her prompt recovery. As she improved, menstruation, which had been absent for six months, returned.

CASE III.—Treated during the summer of 1894, Holland girl, aged eighteen, occupation a domestic. This patient, contrary to the usual rule, was not anemic, but had a good color and full habit; family history good.

The symptom which caused her to consult a physician was excessive sweating; her occupation exposed her to the heat of the kitchen, and her clothing was saturated all the time with perspiration, which emitted a sour and offensive odor. Other symptoms observed on examination were goiter and rapid pulse, most of the time as high as 120; menstruation scanty and irregular. Patient was treated by galvanism. Medicines given were potassium permanganate and belladonna; treatment continued for four months; goiter disappeared and heart-action reduced to 90; profuse sweating stopped and menstruation restored.

CASE IV.—January, 1896, boy ten years old, parents healthy, had suffered from a severe and protracted attack of rheumatism two years previously, which had left him with valvular affection of the heart. This was aggravated by a second attack, and within two weeks a goiter and exophthalmos became quite noticeable. The patient, being confined to the bed, received no electrical current, the treatment being directed wholly to relieving the rheumatism, which was accomplished in about four weeks. The boy still has a valvular murmur and goiter.

CASE V.—Miss L., aged twenty-five; occupation, public singer and instructor in music; family history good; became my patient during the summer of 1894. She gave the following history: During the preceding year, while a pupil in the Boston Conservatory of Music, she found she was suffering from bleeding piles, from which, at times, the hemorrhage was profuse; this having gone on for several months, she consulted Dr. H. O. Marcy of Boston, who took her into his private hospital and operated upon her successfully for their removal.

While in the hospital she began to develop exophthalmos, and within two months this symptom had changed her appearance so much that on her return to Michigan her friends sometimes failed to recognize her on the street.

I saw her soon after, and discovered that she also had goiter, a fact which had hitherto escaped her notice. Her condition gradually grew worse, rapid pulse, irregular menstruation, profuse sweating, and chronic diarrhea being her symptoms. In November she had become too weak to continue her singing and teaching, and by my advice tried complete rest in bed for several weeks, when, seeing no improvement, she was sent to a hospital, where she could have daily electrical treatment and massage. Improvement was rapid, and in about two months patient went home and treatment was discontinued until January of this year, when, finding her strength failing rapidly, she again came back for treatment. Galvanism and massage were used, and again marked improvement was noticed. Patient was treated once or twice a day for two months, and has gone home much improved. She has a twelve-cell battery, and will continue to apply galvanism as long as there is improvement.

During the last interval of treatment accurate measurements were taken, and the neck decreased in size one and one-half inches and the pulse from 140 to 90 and 100. Patient increased in strength, and, though not cured, was greatly improved.

In reporting the above cases I have not thought best to mention all the remedies that were tried and discarded, and have only mentioned those which were of apparent benefit, *viz.*, galvanism and massage. Three of the cases took desiccated thyroids faithfully, but in each of these the remedy did no good, but made the patient worse.

CASE VI.—September, 1895, Miss Z. R., aged eighteen, student; family history good. Physical signs were goiter and exophthalmos; on physical examination, the pulse was found to be small, 100 beats per minute, and greatly accelerated by the slightest exertion. Any considerable effort, as the climbing of one flight of stairs, would cause dyspnea and general distress; the sounds of the heart were not altered, except in the duration and force of the first sound. There was an absence of physical signs to prove the existence of any ordinary form of heart-disease; it was the ideal condition met with sometimes as a result of overwork producing cardiac exhaustion.

The symptoms described all developed within three weeks, and are of interest, because I believe the contributory cause was the abuse of the bicycle. The patient belongs to a family of bicyclers, her father being a dealer in that vehicle. It had been her custom to take many long and tiresome runs to adjoining towns, also to climb steep hills without dismounting, and she had repeatedly tired herself in this manner till forced to desist by the development of the symptoms described. In this patient the goiter, exophthalmos, and cardiac symptoms developed simultaneously. Rest in bed for several weeks, nutritious diet, and tonics improved the patient rapidly. She did not continue the treatment as long as she should have done, and at this time, though enjoying a fair degree of health, still has goiter and the eyes are not natural. She has not resumed the use of the wheel.

AN ADDRESS.

THE EVOLUTION OF THE SURGERY OF THE TWENTIETH CENTURY.[1]

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"The law is continuity, the watchword progress, the worker evolution."—PROFESSOR JOHN CHIENE, M.D.

IN availing myself of the privilege of appearing before you this evening, I desire to express my acknowledgments to the President for his invitation to deliver the anniversary address on behalf of the time-honored body of which I am proud to be an humble member, and to promise you, in return for the assurance which I see in your faces that you will listen with patience to what must be an old story to most of you, and, perhaps, will prove to be a prolix one to the remainder, that I shall endeavor so to clothe my subject as to make it appear more than a mere recital of facts, a catalog of events, a list of names, or a stilted declamation of so-called brilliant surgical exploits.

It is my purpose to consider particularly those events which stand out prominently before all others in their relation to the advances made in the science and art of surgery during the present century.

Material progress, however valuable, is but a symptom of mental development. This is just as true of medical science as of science in general, of which latter, in truth, we only just realize that we are but a part. We are but one of the spokes in the wheel of progress, and the conditions of development within our own workshop do not differ materially from those which obtain in the world of work at large. Little things, or what appear to be but insignificant events, gradually assume great importance, and that in direct proportion as they are of a character to enlarge our ideas and broaden our views; take, for example, the incident of the apple falling from the tree at the feet of Newton. The little ripple of thought thus set in motion in the pool of the philosopher's mind evolved into a wave, which gathered force as it rolled on until no man may say where its influence shall end. From this trifling incident arose a train of philosophic thought whose far-reaching effects have extended into the celestial spaces by establishing a physical law, to which the entire planetary system is as subject as the most insignificant object upon the earth's surface.

Looking back over the cultivated fields of the century, where the toilers of the soil of science have labored, how rich the harvest seems! And yet not all has even blossomed, much less come to fruition. The seed of original thought is being plenteously sown, and the graft of improvement implanted upon older stock. Here and there one discerns a constantly broadening area of exceptionally rich intellectual development, whose thought-nucleus glistens and sparkles like a jewel of great worth, as, indeed, it is. In the field of the healing art animal-experimentation, anesthesia, antisepsis and asepsis, and the discovery of the Röntgen rays, are to surgery what Newton's discovery of the law of the attraction of gravitation was to astronomy, Priestley and Scheele's discovery of oxygen to chemistry, and Darwin's discovery of the law of selection to evolution. From each of these, as a central idea, have grown out constantly widening furrow-lines of both intellectual evolution and physical development.

EXPERIMENTATION UPON LOWER ANIMALS.

The emblem "Truth" has ever been written upon the banner of the soldier of science. In the words of our lamented Loomis: "The scientific experimenter alone adds to our store of knowledge and power for good. He seeks for truth, and truth alone. However isolated

[1] Anniversary address delivered before the New York Academy of Medicine, November 19, 1896.

or unrelated his results may seem, he sees in each a potential value. The most insignificant discovery thus not only has its peculiar merit, but points the way to other hidden truths, although it may often be difficult to connect the several links in the long chain of progressive knowledge."[1] This sounds the key-note of all the important advances made in surgical science during the century. The spirit of original research is one of the most precious heritages of the healing art. But it is particularly during the past century that the results obtained from experimentation have been of the greatest value to surgery, although the intellectual evolution which led up to these results has been going on for centuries.

The fear of a fatal result from hemorrhage exercised a deterrent effect upon the operative efforts of the earlier surgeons, and at the present day this fear has a most healthful influence in preventing pretenders from performing surgical operations. Like a soldier under the enemy's fire, the surgeon, by his behavior in the presence of a severe hemorrhage, soon announces what qualities he possesses to entitle him to respect. As Senn has truly said: "Skilful treatment of hemorrhage is an infallible criterion of good surgery."[2] Loss of blood is the regular accompaniment of all major operations, and may complicate what at the outset was the most trivial procedure. It is no wonder, therefore, that the earliest practitioners of our art should have turned their attention to this most important subject; the evolution of the aseptic animal ligature is an outcome of this early demand for protection against the dangers of surgical hemorrhage.

The first application of the ligature for the prevention of hemorrhage was the result of an instinct rather than of reasoning. Naturally enough this instinct found its first expression in the arrest of the bleeding resulting from severing the umbilical cord in the new-born. The first account of such application dates back to 1500 B.C., although it is more than probable that this was the very first bit of technic that was developed in what was afterward to become the science and art of surgery, although writers in general allude to Hippocrates as the discoverer of the ligature. Through the centuries that have elapsed since the human maternal instinct first impelled the encircling of the navel-string by perhaps a twisted bit of bark or flax, or a lock of hair plucked from the mother's head, the history of the ligature has been the history of surgery.

It would be impossible to overestimate the force of the moral obligation which impels the surgeon to make sure, in every step of his work, that his actions bear upon their face the deep and lasting impress of honest effort. This obligation demands of him that all attainable knowledge bearing upon his work shall be at his command. Much of this knowledge must be obtained by experimentation, and every instinct of humanity demands that the subjects of this experimentation shall not be his fellow man, but rather those lower in the scale of animal life than himself. It was this moral obligation that impelled Hunter, near the close of the last century, to experiment upon dogs with the view of discovering the reasons for the frequency of secondary hemorrhage following the application of the ligature for the cure of aneurism, and it was this experimentation which developed the fact that injuries to arteries underwent ready repair when the vessels were healthy, and that it was only when diseased conditions were present, or arose, that ulceration and secondary hemorrhage took place. Hunter's enthusiasm was unbounded, and his love of truth so great that his death was directly due to a burst of righteous, yet passionate, indignation, when his word was doubted. He recognized that great benefits were to be derived from experimentation upon the lower animals. Not only were vast results obtained by his indefatigable labors; he furnished the stimulus for those who were to follow, and awakened a generous rivalry in other workers by his example. These followed up his work by confirming the results of his experiments, as well as instituting new ones.

At the beginning of the present century, much yet remained to be learned of the behavior of the blood-vessels under the application of the ligature. An alarming mortality from secondary hemorrhage confronted the surgeon. Preëxisting disease of the vessels could not account for this in all cases. In 1802 there appeared a most important publication by J. F. D. Jones, an English surgeon. Jones followed up the spirit of Hunter's inquiry by means of experiments upon animals, and made a most important addition to our knowledge of the processes employed by nature in suppressing hemorrhage from divided and punctured arteries. He showed that the effusion of lymph from the wound inflicted upon the artery by the ligature was sufficient, even if the ligature were removed at once, to obstruct the vessel; that the formation of a thrombus was not necessary to a complete obliteration of the latter; and, what is of great importance in the light of subsequent developments, he first directed attention to the deleterious effects of suppuration upon the processes of cicatrization in the blood-vessels.

Jones' momentary application of the ligature, however, proved to be unsafe, although its occasional success showed his experiments to be of the utmost importance. At this point the work was taken up by Travers (1813), who, still by means of experiments upon animals, made another stride in the march of progress. The same processes of intellectual evolution were still at work, and new light came from a repetition and extension of Jones' experiments. Travers substituted the temporary for the momentary ligature, and showed that the fears of the older surgeons concerning the dangers of too tightly constricting the artery, which led them to include bits of cork, or a roll of lint in the ligature, in order to prevent erosion of the vessel, were groundless. The great difficulty of determining the earliest possible moment when the ligature could be safely removed proved to be a complex problem, with all the unknown quantities concerned in the processes of healing entering into the consideration. To remove it too early meant disaster from hemorrhage, and to leave it on too long was but to invite suppuration, and possible ulceration of the vessel-wall. Moreover, the

[1] Presidential address of A. L. Loomis, M.D., LL.D., third meeting of the Congress of American Physicians.
[2] "Experimental Surgery."

manipulation necessary for the removal of the ligature seriously interfered with the prompt healing of the wound. In the following year (1814), Lawrence advocated cutting off the ends of the silk ligature, which theretofore had been left long and hanging in the wound to facilitate removal, and burying in the depths of the wound the loop of thread encircling the artery. The credit for this, however, has been claimed for Haire of Essex (1786). Following this came the use of animal ligatures—chamois-skin by Physick, catgut by Cooper, tendons by Paul Eve, human hair by Porta, and the successful use of metallic ligatures of various kinds by Levert. These latter were always cut short and allowed to remain permanently in the wound.

Slowly, but surely, the goal was being reached; but progress came exclusively along the line of accurate observation, and almost entirely upon the basis of experimentation upon animals. Finally the dark clouds of uncertainty cleared away and the clear, bright sunshine of established truth burst forth. The aseptic animal ligature was evolved as a part of Lister's wonderful achievement. The object of the search of the best minds in surgery for centuries was at last found. A ligature had developed which will fulfil all the purposes of hemostasis with certainty and safety, inflict the minimum amount of traumatism, produce the least amount of irritation—serving its purpose pending the completion of the healing process, yet finally disappearing by absorption and substitution when its office has ceased.

Another striking instance of the value to surgery of definite results, derived from experimentation upon animals, is shown in the advances made in our knowledge of processes of repair in osseous structures. The developments in this field alone have been of incalculable benefit to mankind. Duhamel's theory that the growth of bones takes place by an extension of their parts was far from satisfactory to Hunter. He therefore (1772) carried out his classical experiments upon the growth of bone by feeding pigs upon *Rubia tinctorum*, or madder, which has the property of coloring that portion of the bone which develops during the time the animal is fed upon the plant. By means of these and the additional experiments of embedding foreign bodies (shot) in the long bones of animals, at fixed distances from each other, he proved that Duhamel was in error, and that the growth of bones was accomplished by the addition of nutritious material and the simultaneous removal of old bone, the osseous structure in this way maintaining its form and the proper relation of its parts. Howship (1817) followed up this work, and by a series of experiments upon rabbits, made a most valuable contribution to the then existing knowledge of the processes of repair in fractures. He observed the effusion of blood in the neighborhood of the injury, the changes which this undergoes, the fact that it is the medium in which the ossific reparative processes are carried on, the imperative necessity for firm fixation in order that these be not interfered with, and the circumstances governing the quantity and seat of the ossific deposit. In 1836 the work was taken up by Syme, and in 1837 by Heine; in 1844 by Flourens, and later (1858–1863) by Ollier's classical observations and contributions to the physiology and surgery of the osseous system, particularly the osteogenetic properties of the periosteum.

In fact, commencing with Hunter's classical experiments in 1772, almost the entire knowledge of bone surgery at our disposal to-day has been worked out upon the lines first laid down by that great surgeon and those who came after them, including Hofmokl's studies upon the histology of bone during fetal life, and the observation that during the development of bone cartilage-cells are transformed into bone-cells (1874); Kassowitz's observations upon the deposit of early matter in the fibrillary reticulum (1879); Regal and Vignal's experimental researches, which showed that irritation of the periosteum resulted in the production of new bone from the medullary tissue beneath, without passing through the stage of cartilage, and the additional fact, that if the periosteum is destroyed its place is supplied by a connective-tissue cicatrix which resembles the periosteum and supplies its place in case fracture, is subsequently produced at the site of the former periosteal defect (1883); Kosmowski's observations upon the methods of repair in fractures of the skull, in which it is shown that to the osteogenetic properties of the medullary tissue are due the reparative processes in general, and the union of loose splinters of bone in particular; and P. Bruns' experiments upon autotransplantation of marrow which showed that formation of bone takes place from preëxisting osteoblasts in the marrow, a result which constitutes, according to Senn, a potent argument in favor of renewed efforts to obtain bony union in intracapsular fractures of the neck of the femur. Time will not permit me even to mention the names, much less dwell upon the labors of all those who have materially contributed to our store of information, by experiments upon animals in this most important branch of surgical science and art.

Nor will time permit more than a passing reference to these researches commencing with Galen's experiments upon the alimentary canal, and continuing through the intervening centuries until their fullest fructification was reached by the labors of that grand exponent of surgical truth, Nicholas Senn. Who does not know of the wonderful achievements of this man in intestinal surgery alone? Achievements that were made possible by that same development of moral and intellectual force which circles around and has evolved from that which has existed since the very beginning of man's need of aid from man. This precept has possessed the same cogency through all time and remains the golden rule of to-day! Nor can I more than allude to those truths that have been snatched from depths which have been deemed as unfathomable as the mystery of life itself, and that bid fair to rob tetanus of its terrors, hydrophobia of its horrors, and septicemia, in its various forms, of its thousands of victims yearly. Even that God-given boon, anesthesia, as I shall show further on, was evolved, in its final and consummate triumph, upon the basis of animal experimentation. With truth and love of fellow man as the aim and object, the imponderable forces of moral and intellectual development the motive power, and animal experimentation the means, the march of

progress has gone steadily on, and will go on in spite of those who would block the wheels of science by prohibitory laws, the result of a mistaken philanthropy and a misguided enthusiasm.

ANESTHESIA.

The thought-nucleus of anesthesia is found in the gradual evolution of the nervous system of man to its present high development. Around this cluster efforts at self-preservation and the instinct of protection against, and relief from, pain. Through countless ages the struggle went on, and with increased sensitiveness to external impressions came increased demand for means to assuage the pangs of injuries inflicted during combats with those natural foes encountered in the struggle for existence. With the evolution of powers of reasoning this instinct became fully developed, and it is possible for us to believe that methods of accomplishing the relief of pain, more or less completely, were known to the wandering tribes centuries before Abraham came down into Egypt, and are now among the lost arts.

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In Morton's discovery of anesthesia can be discerned the effects of that intellectual evolution which made possible the development of this aid to the surgeon's art. In the world of science there had already dawned a realization of the importance of untrammeled inquiry and the necessity for sound methods of investigation by experimentation, which should admit of verification at every stage of the process.

Of secondary interest is the story of the discovery of the anesthetic properties of chloroform. Flourens, the French physiologist, in 1847 related before the Academy of Sciences, how, after employing hydrochloric ether for purposes of anesthesia, he was led to experiment with chloroform, a substance closely allied to chloric ether. He was completely successful in anesthetizing animals during the otherwise most painful physiological experiments. About this time a student of Dr. John Bell, Furnell by name, who, subsequent to the announcement of the anesthetic effects of this agent, had been in the habit of inhaling ether, and from whom Bell, for fear that the young man would do himself some harm, had hidden the ether bottle, suggested to Mr. Holmes Coote the use of chloroform, a bottle of which he had found and experimented with upon himself while searching his master's medicine-chest for the missing ether-bottle. Dr. Bell seems to have learned of this accidental discovery of the properties of chloroform by his student, and to have imparted the knowledge to Waldie, the Liverpool druggist. It was upon a suggestion from the latter that Simpson made trial of this agent and soon satisfied himself of its valuable properties.

ANTISEPSIS AND ASEPSIS.

The discovery of anesthesia, marking, as it does, one era of the century now drawing rapidly to a close, stood out like a beacon-light and shone alone, albeit with a glorious effulgence, for a score of years, until the modest Scotch surgeon, Lister, wrenched another great secret from the rock of hiding of great truths, which awaited but the rod of such a Moses to bring it forth. The little spark first kindled in the wards of the Royal Infirmary at Glasgow, although at first almost quenched in the pitiless rainfall of ridicule, has survived and furnished the stimulus for other workers, and now stands glowing forth, casting its brightness upon a heretofore dark and unexplored ocean's waste, and lighting the way for other explorers.[1] Doubted and otherwise contemptuously treated by his own countrymen at first, with the exception of Jenner, no discoverer of modern times has had more to contend with in the attempt to place truth upon a certain foundation than Lister. The struggle, however, was a short one. Ere long the processes of evolution of the human mind, which had been at work slowly, but surely, since the days of such giant minds as Galileo and Newton, came to his aid. Without regard to the special details of Lister's method, the underlying principle was soon recognized with that unerring instinct which places first in importance any suggestion which broadens our thought as to the possibilities, however remote, of a new grasp upon the processes of Nature, and the application of knowledge thus gained to the needs of the human race.

Without detracting in the slightest from the glory of Lister's achievement, it is but fair to say that his was but the application of a principle, that of germ-growth, which was then in the process of development, to the solution of a problem that was uppermost in the minds of other workers. The peculiar conditions under which microorganisms proliferate being known, it was but a step further to the suggestion that these possessed irritating properties when brought in contact with tissues whose vital resistance had been lowered by the infliction of an injury. That the relation of germ-infection to wound-diseases did not first occur to Pasteur, is only to be explained upon the assumption that the evolutionary changes in the mind of the latter stopped short at the stage of the application of the germ-theory of disease to locally favorable conditions in the human body. His mental vision had grasped in succession the catalysis of Berzelius, the relation of fermentative processes to the growth of mold-fungi, the dependence of certain epidemic diseases in lower animals upon microörganisms of similar origin, and the possibilities of the laws of susceptibility and immunity. Here, however, his work, so far as it relates to surgical diseases, ceases, and at this point it is taken up by Lister. It is but the repetition of "the spectacle so often witnessed in the history of science of a brilliant discoverer traveling in triumph along some new path, but stopping just short of the goal which subsequent exploration has revealed. A great fact stands looming up before his face, but, through the excess of light which he has already taken in, he is blind to its presence. The intellectual effort already put forth has left no surplus for a more extensive sweep of comprehension, and further progress requires a new start and forces generated from a fresher

[1] "On a New Method of Treating Compound Fracture, Abscess, Etc., with Observations on the Conditions of Suppuration," by Joseph Lister, Esq., F.R.S., Professor of Surgery in the University of Glasgow, *The Lancet*, March 16, 23, and 30, 1867, pp. 326, 357, 387.

mind."[1] With faculties unjaded and unwarped, Lister appeared upon the scene. The long lines of thought devoted to studies of the growth and life-history of microscopically minute vegetable organisms led up logically to the inception of his task and its final consummation.

As a further stage of the evolution of moral forces based upon the element of safety, came an inquiry as to the effects of the antiseptic agents themselves upon the individual, and the behavior of the tissues, when contact with possible sources of infection were eliminated. Two facts were thus developed: (1) It was ascertained that the use of germicidal agents was a not unmixed good; (2) that the prevalence of pathogenic bacteria was not nearly as great as had been formerly supposed; and (3) that the tissues themselves, when uninjured, possessed a certain amount of resistance to the invasion and effects of these latter, the lessening of this resistance being in direct proportion to the extent of the injury inflicted upon the parts by the operation itself, or by whatever was brought into contact with them. With the study of the natural processes of repair, of tissue-resistance, and evolvement of the *locus minoris resistentiæ*, came the demand for the protection of living cells, and the evolution of asepsis. Slowly, but surely, this portion of the chain was forged and fashioned, until it stands as the connecting-link between the pound of cure of the past and the ounce of prevention of the future.

The last link of this chain to be worked out was the evolution of the aseptic conscience. The entire circle of protection thrown about the operating-field could be broken and every precaution set at naught by a lapse of watchfulness, or want of care on the part of any one of the participants in the operation. It was early recognized that constant vigilance was the price of safety, and hence arose the necessity of inculcation in the assistants by the operating surgeon of precept upon precept and line upon line. The knowledge derived from Cheyne's labors, that even the air of hospital-wards was comparatively free from noxious germ-life, led to the inquiry as to the sources of the infecting agents; and when it was realized that these were to be found in the skin of the patient, his clothing and hair, the hands, and particularly the finger-nails of the operator, the persons of nurses, and, in fact, everything with which the patient might come in contact, which had not been previously disinfected, the necessity for the most rigorously protective environment was declared and emphasized, and the responsibility of the operator increased. This extreme degree of surveillance was soon followed by a highly developed mental sensitiveness in those engaged in the work, which rendered them susceptible to and conscious of the slightest act calculated to impair the purity of the aseptic technic, either on their own part or that of others.

THE RÖNTGEN RAYS IN SURGERY.

Sound knowledge of pathology and correct diagnosis must always remain the groundwork for successful treatment, and no surgeon, however skilful as an operator, can hope to attain the acme of usefulness in his work without these. The substitution of accuracy for guesswork, of certainty for uncertainty, of positive knowledge for abstract theorizing, must ever be attractive to the scientific mind. The discovery of Professor Röntgen of Würzburg, within the past year, of the peculiar power of certain rays to pass through substances that are opaque to what we know as light, bids fair to be to surgical diagnosis what animal experimentation, anesthesia, and asepsis are to operative surgery.

The story of the discovery of the Röntgen rays reads almost like a chapter from one of Bulwer's tales. One night, while working in his laboratory with a Crookes' tube trying to fathom the mystery of the cathode rays, his attention was attracted by a piece of paper lying upon the work-table, upon which appeared a luminous, sparkling spot, as if a single ray of bright sunshine, coming through an opening in a dark shutter, had fallen upon it. This explanation of the phenomenon was manifestly impossible, since it was night. The reflection was too bright to proceed from his induction machine. Upon examining the piece of paper closely, he found that the reflected light had been given off from a portion of the sheet where some idle student in the laboratory had carelessly traced the letter "A" with a platinum-cyanid solution. He at once came to the conclusion that the illumination of the paper must have been caused by the rays from the cathode of the Crookes' tube, although these were invisible to the eye. The mind of the practical surgeon grasps at once the possibilities of not only detecting the presence of foreign bodies, but the relative positions of the fragments in fractures, and of articular surfaces in dislocations. Both the methods of immediate inspection by means of the fluoroscopic tube and screen, as well as permanent record through the medium of the skiagraphic plate, are already in use, and yet not a twelvemonth has elapsed since Professor Röntgen announced his discovery. One year ago to-night the possibilities of the application of this one of the results that have been evolved from the labors of Faraday, Maxwell, Hertz, Lenard, and Röntgen were scarcely dreamed of; and yet such has been the contention for the privileges of priority that practical methods have been rapidly brought forward, through the labors of Edison, Pupin, and others, for the utilization of this vast work for the purposes of practical surgery.

When we pause and gaze upon the magnificent structure that has risen during the present century, every stone of which represents the strength of a patient, earnest, and conscientious worker, cemented together only too often by the life-blood of the martyr, it is scarcely possible for the human mind to realize that so much could be accomplished in so short a time, much less grasp the possibilities of the future.

The lessons of the past gather about us like the falling leaves of a summer's departing glory, but they are not lost nor wasted. Properly interpreted, they serve to emphasize man's opportunity in the present and his hope for the future. Not the least among these lessons is that which teaches us that the unfolding of Nature's secrets is but a part of the plan of the creation; that irresistible

[1] Professor Fisk, "A Century's Progress in Science," *The Atlantic Monthly*, July, 1896.

forces are at work evolving truth and casting aside error; and, finally, that man's present position in this great work removes him from the place of a creation of the hour, and stamps him as the product of all time and the heir of all eternity.

The century upon the threshold of which we stand is lighted with jewels of hope in golden settings, and its atmosphere is filled with the sweet music of promise. The brightness of the one and the melody of the other is enhanced by the thought that no Macaulay-like prophet has conjured up the vision of a horde of wolf-like charlatans running riot among the fallen columns and dismantled arches of the Temple of Science, that mighty citadel so graphically described by our own Holmes as

The towering pride of twice a thousand years.

CLINICAL MEMORANDUM.

EXTERNAL URETHROTOMY IN A CHILD, AND OTHER CASES.[1]

BY FRANK C. HAMMOND, M.D.,
OF PHILADELPHIA, PA.;
SENIOR AND SURGICAL RESIDENT ST. JOSEPH'S HOSPITAL.

CASE I.—G. D., female, six years of age, was admitted to the ward, April 6, 1896. About four months prior while at play she fell and struck her left knee a violent blow. A week or two following the injury, slight swelling was noticed by the mother, in the neighborhood of the joint. On examination the knee of the affected side was found greatly swollen, almost three times the size of the sound side. The color of the skin surrounding the joint was the same as that of the remaining portion of the leg. On palpation it felt several degrees warmer than the sound joint. In comparison with the other leg, no atrophy was present either above or below the articulation. The child was able to stand on the leg, but unable to bend it at the knee. The patella was adherent, and the tissues surrounding the joint markedly resistant. Although no tubercular history could be obtained, there was some doubt in regard to the mother's physical condition, as there was an impairment of resonance over the apices of the lungs. The mother refused to bring a specimen of her sputum for bacteriological investigation, hence the presence or absence of tubercle bacilli could not be ascertained. However, everything pointed to a tubercular arthritis. The little sufferer was placed in bed, and extension applied by means of weights over the foot of the bed. Sand-bags were also applied, and the child was placed on a full diet of the hospital-diet list. On June 22d the mother was very anxious to take the little one home, and she was allowed to go. On that date the swelling had subsided to such a degree that the affected knee was very slightly larger than the sound one, the patella was freely movable, and she was able to bend the knee and walk with little difficulty. After the first two weeks in bed no pain was experienced on examining the joint.

CASE II.—April 8th, about eight A.M., J. C., six years of age, was brought to the hospital by his mother, who gave the following history: About one year ago the boy suffered from a severe attack of acute gastritis, and after this from an entero-colitis. Prior to and since this attack he has enjoyed very good health. The evening of the 6th he complained of sharp pains in the hypogastrium, which later on in the night became quite severe. The mother, thinking it was a similar attack to the one twelve months previous, administered Hoffmann's anodyne. This apparently relieved the child, for he complained of no pain till the following morning. During the night no urine was passed. The morning of the 7th the severe, sharp, stabbing pains returned, and occurred off and on during the day. The child was permitted to attend school, and on his return home in the afternoon he informed his parents that he had not urinated since early the evening previous. During the evening of the 7th, the pain increased, and the constant desire to pass urine manifested itself. The next morning, thirty-six hours after the attack began (and during this time no urine had been passed), he was taken to the family physician, who referred him to this hospital for operation. On examination I found the bladder greatly distended, pyriform, and with its fundus reaching as high as the umbilicus. The bladder seemed on the verge of rupturing. The slightest touch of the abdomen in this region was resented by the child, owing to the existing tenderness. The tongue and mouth were markedly dry, the skin was warm, relaxed, and covered with perspiration; pulse and respiration slightly accelerated. Temperature, taken sublingually, 100° F. A filiform catheter was introduced into the urethra, which met with an obstruction at its membranous position. Tapping on the obstruction with the catheter, a noise was produced, distinctly heard by those around, and a diagnosis of impacted stone was made. Following along the track of the urethra externally, the stone could be easily felt, and readily seized between the fingers. As is the custom, I intended sending for my chief, but fearing the bladder might rupture prior to his arrival, I decided to do an external urethrotomy at once. The child was chloroformed and placed in the lithotomy-position. The parts were scrubbed and everything prepared to do an antiseptic operation, as antisepsis, during and after the operation, has minimized the danger of laceration of the mucous membrane.

The stone was seized between the thumb and index-finger, and was cut down upon. The incision was made over the urethra, at the junction between the penis and the scrotum. The skin was incised, and the underlying cellular tissue separated with the handle of the knife. The urethra was opened directly over the stone, and owing to the edematous condition present, some little difficulty was experienced in removing the stone from its boggy bed. Upon its removal the urine failed to flow away. A metal catheter was then introduced through the meatus and penile urethra, but I was unable to pass it beyond the incised portion of the membranous urethra. This being unsuccessful, catheterization was then tried through the incision, endeavoring this way to enter the membranous urethra, and then enter the bladder.

[1] These cases occurred in the service of Robert B. Cruice, M.D.

This procedure, however, proved a failure. Then the first method was repeated; this proved successful. The major portion of the urine was allowed to escape, the catheter was permitted to remain, and the external end cut off about an inch from the meatus, and retained in position by means of silk and adhesive strips. The incision was closed by three silk sutures, which were removed on the sixth day with primum intestionem. About an hour after the operation the remaining urine was allowed to escape, and the bladder was washed out with a boric-acid solution. The catheter was removed at the end of ten days, and since then not the slightest inconvenience has been experienced on urination.

Since the operation bougies have been introduced from time to time, but no contraction of the urethra has been found. On the second day the temperature returned to normal, and remained so until the boy's discharge, April 24th. The stone was brittle, and a small piece chipped off during its removal. It was roughened, measured three-eighths of an inch in diameter, and was a uric-acid calculus.

CASE III.—J. H., male, aged twenty-five, electrician, was admitted to the house shortly after midnight. This man works in one of the power-houses near by, and while passing in front of the switch-board, through an imperfection, a flash occurred. As a result the face, neck, both arms and hands, and front part of chest were burned, the hair being singed off the head, eyebrows, and eyelids. There was no involvement of the cornea or conjunctiva. He was suffering a great deal of pain, though very little shock. He was completely enveloped in gauze, saturated with carron-oil, which had been applied by his fellow workmen. After being removed from the receiving-ward to the surgical ward, the above dressing was removed, and one of saturated solution of sodii bicarbonas instituted. After the expiration of thirty-six hours all sensation of heat had disappeared, and an antiseptic dressing consisting of a carbolic-acid solution was substituted. In the dispensary- and ward-work we have found carbolic acid to be the preferable dressing for burns and scalds. It not only acts as an antiseptic, but also relieves the burning sensation and pain. The temperature during the night and next day ranged along 102° F. Second day it fell to 99⅘° F., then gradually ascended, till on the fourth day it reached 102⅘° F., and remained so until the evening of the fifth day, when it gradually began to descend, and on the ninth day it had reached normal. Some superficial sloughing occurred on the neck, arms, and chest; none on the face. None of the complications such as duodenal ulcers and nephritic lesions, so common with such extensive burns of the body, were present. On the day of discharge, July 13th, the various surfaces had all healed, and the only contraction present was on the right half of the neck, the chin being drawn downward and to the right of the median line. The patient expects to return to the hospital sometime this fall for an operation to relieve this contraction. According to the statement of members of the staff, this was one of the worst cases of the kind ever admitted to this hospital.

MEDICAL PROGRESS.

Auto-intoxication from Chronic Constipation.—As the result of a careful study FERMI and CASCIANI (*Centralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten*, 1896, Nos. 22, 23, p. 869) have arrived at the conclusion that the symptoms associated with chronic constipation are attributable to a multiplicity of causes. Neither the mechanical theory, nor the nervous theory, nor the theory of auto-intoxication affords alone a sufficient explanation. The symptom-complex may result from auto-intoxication in consequence of the absorption of toxic substances generated in the gastro-intestinal tract; from auto-intoxication resulting from diminished or abolished excretion through the bowel of normal or pathologic substances, and especially through the reflex influence resulting from the mechanical or chemic irritation due to retarded intestinal activity.

THERAPEUTIC NOTES.

For Malarial Fever in Children.—

℞	Tinct. of *Eucalyptus globulus* } Alcohol }	aa	2 fluidrams
	Quinin hydrochlorate . .		½ dram
	Quinoidin		1 scruple
	Hydrochloric acid, sufficient to make a solution.		

Dose: From 20 to 40 drops five times a day.

—ZUCKERMANN, *Semaine Médicale*, 1896, No. 35.

Palliative Treatment of Carcinoma of the Uterus With Sodium Chlorate.—In the treatment of malignant disease of the uterus the employment of sodium chlorate is recommended both by internal administration and applied topically. For internal use the following formula may be employed:

℞	Sodium chlorate . . .	4 fluidrams
	Syrup of orange-flower . .	6 fluidrams
	Distilled water . . .	5 fluid ounces
	Mix.	

Dose: A tablespoonful or two from twice to four times a day.

As a local application a small amount of the following powder may be dusted upon the diseased surface:

℞	Sodium chlorate } Bismuth subnitrate }	aa . .	4 drams
	Iodoform		2 drams
	Mix.		

One may also employ tampons of sterilized gauze saturated with a mixture of

℞	Iodoform		1 part
	Sodium chlorate } Glycerin }	aa . . .	20 parts

If iodoform be badly borne and give rise to toxic symptoms, cotton impregnated with salol may be used, being first immersed in a twenty-per-cent. aqueous solution of sodium chlorate.

Under the influence of the foregoing treatment metrorrhagia and fetid discharge diminish, the pain lessens, the turgescence of the cervix subsides, ulceration disappears, appetite and digestion are restored, and the general state is improved.—*Semaine Médicale*, 1896, No. 35, p. 278.

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SATURDAY, NOVEMBER 28, 1896.

INFANTILE TUBERCULOSIS BY INGESTION.

TUBERCULOSIS of the intestine is exceptional in the first two years of life, as shown by the statistics of Weiderhofer, who, in 101 cases of intestinal tuberculosis in childhood, found only six under two years of age, and a percentage of eight for all cases of tuberculosis under two years, as opposed to twenty-eight per cent. for cases in children from two to fifteen years of age. Three sources of origin for intestinal tuberculosis are possible: (1) In acute miliary tuberculosis small, gray, semi-transparent granulations may be found upon the intestinal mucous membrane. These are hematogenous in origin. (2) In young children having chronic pulmonary tuberculosis with cavities the intestine may be infected from the swallowed expectoration. The lesion then assumes the common ulcerous form seen in adult consumptives. It is extremely rare under two years. (3) After the ingestion of tuberculous food, especially the milk of a tuberculous cow. In these cases there may be no lesion of the intestinal mucous membrane, the bacillus having traversed it to find a suitable soil for growth in the mesenteric glands. When lesion of the mucous membrane occurs it ordinarily assumes a special form—discrete without ulceration. This is characterized by submucous nodules the size of a pea, filled with gray, or cheesy, more or less softened material, and united by a delicate, fibrous covering, these nodules corresponding in position with the affected mesenteric glands.

Drs. Marfan and Apert in the *Revue Mensuelle des Maladies de l'Enfance*, June, 1896, consider the above subject, basing their remarks on a somewhat unusual example of tuberculous disease in a child, aged sixteen months. This child had been nourished only at the breast, with the exception of certain days, when, the mother being at work, cow's milk had been given. The family history showed healed tuberculous cervical adenitis in the mother. One of her nine children had died of tuberculous peritonitis, and another had coxalgia. At the age of nine months the patient had come under treatment for a suppurative adenitis of the neck, and at this time it was noticed that there were ulcerations upon the gums, covered by pultaceous and fetid exudate, which persisted despite treatment instituted at the time. At the age of thirteen months a diarrhea began, and persisted without amelioration till death, a few days after admission to the hospital. The autopsy revealed an enormous mass of tuberculous mesenteric glands, with tuberculous ulcerations of the colon, ileum, jejunum, and duodenum; the liver, spleen, heart, and kidneys were normal; a few small, recent, grayish granulations, with two small foci of broncho-pneumonia in the right base, indicated the degree to which the lungs were involved.

According to the authors the first focus of disease was the mouth and the ganglia of the neck; next the intestine. The slight pulmonary lesions were of recent origin. The source of the infection must be assigned to the milk of the mother or of the cow.

The importance of the subject in the early feeding of babies cannot be too urgently insisted upon. If the mother of the child is tuberculous, the first duty of the physician is to remove the child immediately from its mother's milk, and rear it preferably on the breast of a healthy wet-nurse, or if this is impracticable, upon sterilized milk of the cow. As pointed out in a recent editorial the principle of "ingestion tuberculosis" is practically recognized in Denmark in the rearing of cows, horses, and swine.

THE TREATMENT OF DIPHTHERIA WITH THE ANTITOXIN.

ADDITIONAL testimony is constantly accumulating to establish beyond doubt the utility of the

antitoxin in the treatment of diphtheria. A recent contribution can be found in the report made by Furth (*Münchener medicinische Wochenschrift*, 1896, No. 29, p. 669) of 150 cases thus treated at the medical and surgical clinics of the University of Freiburg. This report is supplementary to a previous report of 100 cases treated in the same way. Of the 150 cases diphtheria-bacilli were found in 123. In the remaining 27 the diagnosis was confirmed by subsequent tracheotomy; of these, besides, 13 terminated fatally, and were examined *post mortem*. Twelve cases in which diphtheria-bacilli were not found, were treated with the antitoxin, but they are not included in these statistics. In 34 of the 123 cases streptococci also were found, but the examinations were made twenty hours after inoculation—at a time thus unfavorable to the development of streptococci. In 5 children with laryngeal diphtheria, of whom 3 required tracheotomy and 2 died, diphtheria-bacilli were cultivated from the pharynx, although this was free from membrane, swelling, or redness. One of these children had also measles, so that the diagnosis was a matter of considerable significance. Of the 150 cases 122 were uncomplicated and 28 complicated. The complications included measles (16), scarlatina (5), measles and scarlatina (2), measles and typhoid fever (1), and tuberculosis (4). Among the 122 uncomplicated cases there were 12 deaths (9.8 per cent.); tracheotomy was required in 26 cases (21.3 per cent.), with 9 deaths (34.6 per cent.). Among the complicated cases there were 11 deaths (39 per cent.); tracheotomy was required in 9 cases (32 per cent.), with 6 deaths (66.6 per cent.). Of the whole number of 150 cases death occurred in 23 (15.3 per cent.).

Notwithstanding the coincidence of epidemics of measles and scarlet fever the mortality was lower than in any previous year. The proportion of cases requiring tracheotomy was also smaller, and the mortality among these also lower. Over and above the complications the disease itself was in many instances of unusual severity. While in former periods the mortality in early life had varied from 60 to 100 per cent., in the present collection of cases there were only 3 deaths among 19 children under two years of age, although 8 of these cases required tracheotomy. The dose of the antitoxin employed was larger than previously. Of the fatal cases 2 were septic, without involvement of the larynx. Both of these came under observation on the fourth day of the disease, and death took place in sixteen and sixty-eight hours, respectively. In 6 cases death resulted from descending croup; all required tracheotomy. In 2 cases death was due to diffuse bronchopneumonia, after the local process had terminated. Finally, in 2 of the cases, death resulted from paralysis of the heart on the sixth and forty-first days of observation, respectively.

BROOKLYN'S CHARITY HOSPITAL.

Commissioner Bergen of the New York State Board of Charities has recently filed in Albany a report on the Kings County Hospital. He presents in greater detail the disgraceful conditions existing in that institution, but otherwise only repeats facts which have already been pointed out in our editorial columns, October 3, 1896. The observations cited by Mr. Bergen were made more than six months ago, but from personal inspection we know that the conditions have not improved, and if possible are now even worse than he depicts them. This hospital is the largest in Kings county, and in number of inmates the third largest in the State. Within its doors are found all sorts and conditions of the afflicted poor, a large portion of whom would find more appropriate accommodations in almshouses, workhouses, homes for incurables, or inebriate asylums.

The immediate management is absolved from responsibility for the existing conditions because of the inexorable requirements of the law, which compel it to receive every applicant residing within the county, as well as State paupers, upon contract, and those suspected of insanity until examined by the physicians. It matters not what demands are made, no one of these can be rejected upon the excuse of a lack of room.

There results from this the fact that there is an average of more than twenty persons in each ward, originally designed to accommodate ten. A surgical ward provided with ten beds was made per force to accommodate twenty-four patients. Another had ten beds and thirty-three inmates. Nurses sleep in the wards with the patients, and in the entire hospital considerably over two hundred of the inmates sleep on mattresses thrown upon the floor.

During the past year relief was sought by diverting to building purposes $40,000 which had

been saved from the appropriation for current expenses, but through official indirection this sum remains unavailable. And thus suffering, filth, and criminal neglect make the daily record of Brooklyn's care of her helpless poor, while officials squabble over technicalities.

This incongruous horde of broken humanity, with afflictions differing less in distressing form and fatality than in pathological variety, herded like cattle beneath this single roof, presents a scene too repulsive for the eyes of this enlightened age. To the eternal shame of Brooklyn be it known that she is silently fostering this abuse. Why criticise the cruel Spaniard or fly in the face of the unfeeling Turk, while at our very doors such crimes are committed in the name of charity?

ECHOES AND NEWS.

The New York Hospital.—It is reported that Dr. William H. Draper has resigned his position as visiting physician to this hospital.

Dr. Moore Madden Honored.—The Royal University of Ireland has conferred the degree of Master of Obstetrics (M.A.O.) on Dr. Moore Madden, well known as the author of "Clinical Gynecology."

The Deborah Nursery.—The New York Board of Health has ordered the vacation of the Ladies' Deborah Nursery and Child's Protectory, unless proper medical attendance for the ophthalmic children there is provided.

Preliminary Examinations in Missouri.—How urgent has been the need of an entrance-examination in the Western medical schools is indicated by the results of a recent test. Of seventy-two candidates thirty failed.

Honor Conferred.—The Asiatic Society of Bengal at its last annual meeting elected Sir Joseph Lister and Professor Michael Foster honorary members to fill vacancies made by the deaths of Professor Huxley and M. Pasteur.

A New Turkish Bath.—The hot-sand bath in vogue among Mohammedans has been tried by Swiss physicians with good results in rheumatism, gout, and neuralgia. It is regarded as a potent sudorific which does not affect the heart.

The Epidemic of Beri-beri in Dublin.—There have been ninety-eight cases of beri-beri, with six deaths, to date, in the recent epidemic at the Richmond Asylum, Dublin. The epidemic is characterized by a tendency to frequent and sudden relapses.

The Harlem Dispensary.—The great increase in the number of poor patients applying to the Harlem Dispensary for treatment has necessitated its removal to larger premises at 108 East 128th street, which were formally opened November 23d.

A Meeting of Assistant Physicians of Hospitals for the Insane.—The fourth meeting of the Association of Assistant Physicians of Hospitals for the Insane will be held at the Eastern Michigan Asylum, Pontiac, Mich., on December 3 and 4, 1896.

Medical Electricians.—Drs. Milne Murray and Dawson Turner have been appointed, by the Medical Managers' Committee, medical electricians to the Edinburgh (Scotland) Royal Infirmary, where a very complete electrical plant has been established.

Formalin and Museum-specimens.—Several pathological specimens which had been preserved by formalin were exhibited at a recent meeting of the London Pathological Society. Though they had been preserved for several months, no change in their original color was observable.

Cancer Treated by the X-ray.—The *Lyon Médical* tells of the treatment of cancer of the stomach by the X-ray, and claims that it ameliorated the general condition and prolonged the patient's life for two weeks, absolutely suppressing the pain over the tumor and notably diminishing the volume.

The Journal of Nervous and Mental Disease.—The following are announced as editors of this journal for the coming year: Drs. Chas. L. Dana, F. X. Dercum, Philip Coombes Knapp, Chas. K. Mills, Jas. J. Putnam, B. Sachs, M. Allen Starr. Dr. Chas. Henry Brown will be managing editor.

Hughlings Jackson Lectureship.—The Neurological Society of London has announced its decision to establish a lectureship to be named in honor of Dr. Jackson, one of the founders and the first president of that body. At the earnest request of the Society, Dr. Jackson has consented to deliver the first lecture.

Brooklyn's Water-supply.—Mayor Wurster of Brooklyn urges that the question of the future water-supply for the city be settled before he retires from office and before the city becomes a part of the Greater New York. He has decided to hold public hearings on the subject, at which the matter can be freely discussed.

Life-insurance of Women.—Only eight or nine of the life-insurance companies insure women at the same rate as men. Further experience is now convincing these companies of the injustice of this discrimination. The mortality-rate among the female risks in one company did not rise above eighty per cent. of its anticipation.

The German Poliklinik.—On the 17th of December, an entertainment will be given at the Metropolitan Opera House under the management of Messrs. Daly, Frohman, Seidl, and others for the benefit of the New York German Poliklinik. This institution has quite outgrown its present quarters, and increased funds are needed.

The Uniform of Bellevue Hospital.—One hundred and twenty-five attachés of Bellevue Hospital appeared in uniform this week. The men are divided into five grades, each grade having a distinctive style of uniform. The

uniforms of four grades are of blue cloth, trimmed with red braid, while those of the fifth grade are of gray cloth.

An Elevator Accident.—One day last week an elevator-car in the American Tract Society Building, New York, became unmanageable and fell several stories. The man in charge, with commendable presence of mind, called upon the passengers to stand upon their toes, thus breaking the force of the concussion. One man fractured his patellæ. But the advice saved all the others from serious injury.

The Climate of England.—At the recent sanitary congress in London Mr. Dines said that it was satisfactory to find that the much-abused climate of England was superior to that of any of the colonies in which troops were kept, excepting Canada. Dealing with the Registrar-General's returns, the President came to the conclusion that a temperature below 60° F. was the most suitable for human life.

New York's Low Death-rate.—The number of deaths from all causes—566—for the week ending Saturday, December 21st, was remarkably low. It is the lowest death-rate that has been reported for any single week since the first week in December, 1889, when the deaths were also 566. No lower number of deaths has been reported since the first week in November, 1887, when there were 565 deaths.

Female Members of the Royal College of Surgeons.—The question of granting diplomas of the Royal College of Surgeons to women is exciting much interest in medical circles of England. The meeting of Fellows favored, but the Council vetoed the proposal, because the allied College of Physicians declined to concur, and because they believed that women are not physically fitted to undertake the major surgical operations.

A Directory of Nurses.—The first edition of a Trained Nurses' Directory by Miss Louise Longeway of New York has just made its appearance. It contains only the names of nurses who have graduated from schools giving a minimum course of two years in a hospital of over one hundred beds. In addition to this, a years' experience in private nursing, and the certificates of prominent physicians and surgeons are required.

The Blind and the X-ray.—From certain experiences in a dark room, Edison determined to try the effect of the ray on two blind men. Experiments were tried with different tubes, and the men said they could distinguish little points of light. The opportunity for embellishment which this afforded was not to be lost, and Mr. Edison was even reported as having said with the X-ray he could make the blind see. The *Sun* quotes him as much annoyed by the absurd statements that had been made.

The Paris Water-supply.—The French capital has already exhausted all the available water in its vicinity, and still the supply is very inadequate. Excluding a certain percentage of very questionable water taken from the Seine and the Ourcq Canal, the amount furnished each inhabitant *per diem* is only a little more than half what is provided in New York City. In order to meet the imperious demands of hygiene for a more liberal supply, Paris is now seriously considering a project of bringing water from Lake Geneva, at a cost of $100,000,000. This source is said to be unexcelled in purity.

The Proposed Infirmary at Harvard University.—For the last two years there has been agitation for the establishment of an infirmary at Harvard. The corporation is now ready to contribute toward buying a suitable site, and a tentative plan has been prepared by an architect. It is hoped that the remainder of the funds required will be raised by subscription. Meanwhile the *Harvard Graduates' Magazine* has proposed a plan by which the running expenses of the infirmary may be met by a fixed charge on the term-bill of each student, and medical attendance for poor students be supplied out of the general sum.

Beer-adulteration.—The New York State Board of Health has been requested to urge the enactment of a law requiring that only hops and malt shall be used in the manufacture of lager beer, and that its chemist shall analyze the different beers manufactured in the State and ascertain whether substitutes for hops are being used, particularly glucose, corn-meal, rice, sirup, and starch. The time during which the beer is stored will also, it is said, be regulated by law, owing to the notoriously injurious properties of beer only a few weeks old. There are 289 breweries in New York, producing annually 10,000,000 barrels of beer.

The New York Academy of Medicine.—At the annual meeting of the Academy, held November 20th, Dr. George R. Fowler of Brooklyn delivered an address entitled "The Evolution of the Surgery of the Twentieth Century" (see p. 602). Dr. Joseph Bryant, the president of the Academy, announced that most encouraging progress had been made in raising the endowment-fund of the library to $100,000. The original fund amounted to $50,000. During the past year $30,000 more has been added to this. In January the Academy will celebrate its semi-centennial anniversary in Carnegie Hall. The chief feature of this celebration will be an address by President Cleveland.

Resolutions on the Death of Dr. Burchard.—The Northwestern Medical and Surgical Society adopted the following resolutions in regard to Dr. Thos. H. Burchard: *Whereas*, It has pleased God to take away Dr. Thos. H. Burchard, distinguished by twenty years of active and faithful membership in the Northwestern Medical and Surgical Society of New York, and *Whereas*, Our hearts are touched with a great sorrow by the suddenness of his decease, therefore *Resolved*, That we desire to place on record an expression of our esteem of our late colleague, who had endeared himself to us by a long line of friendly and generous offices; that we desire to commemorate his devotion to the medical profession, exemplified in so high a degree by his many contributions to this and to other medical bodies, and by his acknowledged skill as a surgeon; and that we realize in the life of our friend the large equipment of mind and body essential to the success of a true physician.

Twelfth International Medical Congress.—The American National Committee of the Twelfth International Congress, which is to meet at Moscow, Russia, from August 19 to 26, 1897, consists, according to the directions of the General Committee at Moscow, of the following gentlemen: J. S. Billings, M.D., New York; Frank P. Foster, M.D., New York; S. Weir Mitchell, M.D., Philadelphia; Charles A. L. Reed, M.D., Cincinnati; George B. Shattuck, M.D., Boston; F. J. Shepherd, M.D., Montreal; George F. Shrady, M.D., New York; W. S. Thayer, M.D., Baltimore, and the chairman, A. Jacobi, M.D., 110 West Thirty-fourth street, New York. The chairman begs to invite the attention of the medical profession of the United States and Canada to the fact that the professional gentlemen in charge of the Congress are anxious to make it a success both from a scientific and a social point of view. Their difficulties are unusually grave, but it is not their fault that the Congress had to wait for governmental permission to meet in their country, or that a special ukase was required for the admission into Russia of Jewish medical men on equal terms with their Greek, Catholic, Protestant, Agnostic, and Mohammedan colleagues; or that the famous and meritorious Secretary-General was—it appears because of his liberalism—ousted both from his place and from his professorship. They should not be held responsible for the political semi-barbarism of the country in which they live. Their position in the world of science and their endeavor to make the Twelfth Congress equal to its most famous predecessors, will prove an incentive to American physicians to sustain, both by their presence and their contributions, the Russian committee.

The Loomis Sanitarium for Consumptives.—On Friday, November 20th, the buildings composing this sanitarium, which have recently been constructed near the town of Liberty, Sullivan county, N. Y., were dedicated. This sanitarium is a country branch, so to speak, of a small hospital in West Thirty-eighth street, New York City, and has been constructed for the purpose of carrying out the well-recognized principle in tuberculosis that if a patient in the early stages of consumption can obtain a few months' residence in a suitable climate under favorable hygienic surroundings, it is possible, in a certain proportion of cases, to arrest the disease. Only those are admitted who are in the early stage of consumption, and to whom a residence for a number of months in the sanitarium promises either a complete cure or such an improved condition that they can return to their homes and be able to carry on their work. It is a charity, pure and simple, intended for clerks, bookkeepers, self-supporting women, etc. There are no free beds, but the expense is only nominal, ranging from $5 to $7 per week. The atmosphere and climate in the high altitudes of Sullivan county resemble very closely those of the Adirondacks, and this sanitarium is run on exactly the same basis as the sanitarium at Saranac Lake. The ground contains 150 acres among the mountains, three miles from Liberty, and 2200 feet above the sea. The sanitarium has been open since June last, and the demand for accommodation has been so great as to necessitate the use of wards originally intended for emergency cases. The present capacity is thirty-one beds. Patients are admitted after examination by either Dr. Loomis or Dr. Quimby of New York City, or by Dr. J. E. Stubbert, at the sanitarium.

Semi-centennial of the American Medical Association.—In view of the fact that the next meeting, which is to be held in Philadelphia, June 1–4, 1897, will be the semi-centennial gathering, and that it will occur in a great medical center, and near the other great cities of the Eastern coast, the Committee of Arrangements for this meeting have already made provision for the accommodation and entertainment of the delegates by the engagement of the Academy of Music, Horticultural Hall, the South Broad Street Theater, and the large meeting-rooms in the Hotel Walton and Hotel Stenton. As these large buildings are all within a short distance of the great railroad depots in the center of the city, and are all situated within one block on both sides of Broad street, every department of the meeting will be conveniently arranged. At the last meeting of the Association it was voted to devote the first evening of the meeting, Tuesday, June 1st, to dinners of the various sections. The officers of the sections desiring to give such a dinner will please communicate with Dr. G. E. de Schweinitz, Chairman of the Sub-committee on Accommodation, 1401 Locust street, as early as possible in order that dining-rooms may be engaged or other entertainment provided. As it is expected that fully three thousand physicians will be present, the committee suggests that applications for accommodations be made as early as possible. It is hoped that every member of the association will make a special effort to attend. Further circulars of information will be issued by the committee from time to time. Individuals and firms desiring space for exhibition in the Exhibition Hall, which will be in the same block as the various meeting-halls, will please apply promptly to the Chairman of the Sub-committee on Exhibits, Dr. Edward Jackson, 1633 Locust street, Philadelphia.

The Execution of Eight Medical Students.—The Cuban Professional Club of New York commemorated on November 27th the twenty-fifth anniversary of the shooting of eight medical students by the Spanish volunteers in Havana. At 10 A.M. a requiem mass was celebrated at the Church of St. Leo. At eight o'clock in the evening a meeting was held in Chickering Hall. The shooting of the Havana medical students was an atrocious example of Spanish barbarity in Cuba. On November 22, 1871, the class went as usual to the San Dionisio Hospital, and learning that the teacher was absent, decided to spend their unexpected recess in the adjoining cemetery. On the 25th the boys were surprised to see the civil Governor of Havana appear in the class-room. In angry words he said he had come to find out who was the author of the "crime," and added: "One of you has desecrated the tomb of Don Gonzalo Castanon. If you do not say who did it, you will all be held responsible for the crime." All the students were taken to jail, excepting a Spaniard, who, the Governor said, could not have done such an infamy. Don Gonzalo Castanon was a Spanish journalist, who, after having

abused the Cubans in a most indecent way and caused many to be put to death, was killed by a Cuban in a duel at Key West. Without any investigation, the volunteers demanded the lives of the medical students, and, although it would have been easy to go to the cemetery and see that the tomb was untouched, the authorities submitted to the volunteers' demands and the students were "court-martialed." The council sentenced to death eight of the forty-three students. Thirty-two were condemned to hard labor. One of them, Dr. Ricardo Gaston, is now president of the club Oscar Primelles, under whose auspices the anniversary is commemorated. The remaining student, Octavio Smith, was acquitted. He was an American citizen. On November 27th the eight students were shot.

Obituary. — Sir Benjamin Ward Richardson, M.D., F.R.S., died November 21st. He was born in 1828, was made an honorary member of the Philosophical Society of America in 1862, and was a member of a number of other prominent societies. He has been president of the Medical Society of London, and was thirty-two times president of the St. Andrew's Medical Graduates' Association. He succeeded Lord Jervis Woode in 1869 as assessor for the general council in the University Court of St. Andrews, and held that office for nearly sixteen years. At the Social Science Congress at Brighton in October, 1895, Dr. Richardson read a paper in which he gave a sketch of an imaginary "model city of health," to be called Hygeia, which caused much discussion. Dr. Richardson took an active interest in the development of bicycling, and was president of the Society of Cyclists. He was knighted in 1893.—Dr. Luis F. Sass died in New York, November 19th. He was born in Havana, seventy-six years ago, and educated in Paris, and had practised in New York for thirty years. He was the inventor of the Sass apparatus for spraying the throat.—Dr. Philip C. Williams of Baltimore died November 22d, at his home in that city. He was born in Winchester, Va., in 1828. At various times he was president of the Medical and Chirurgical Faculty of Maryland, the Baltimore Medical Association, the Clinical Society of Baltimore, and the Pathological Society of Baltimore.

CORRESPONDENCE.

SECOND PAN-AMERICAN MEDICAL CONGRESS.

Held in the City of Mexico, November 16, 17, 18, and 19, 1896.

[From our Special Correspondent.]

HOTEL DEL JARDIN,
IA CALLE DE LA INDEPENDENCIA,
City of Mexico, November 18, 1896.

AS I sit in my room in this curious old convent-hotel this beautiful November day, with the soft southern sunlight streaming in at the wide-open window, and with visions before my eyes of austerely clad nuns, sedately walking between the box-hedges of the quaint old garden, I am mindful of Joaquin Miller's lines to Montezuma's ancient capital:

> This city rests in God's right hand,
> Its sapphire wall is Heaven's wall;
> Where God has done so much for man
> Shall man do naught for man at all?

and the last line is of special significance in connection with the object of my visit—attendance upon the Second Pan-American Medical Congress.

Popocatepetl and Ixtaccihuatl rear their snow-capped summits in sight against the clear tropical sky, and the oddly sounding street cries come faintly to my ears as I train my pen to its duty, vastly preferring as I do to allow my thoughts to wander to the ancient glories of Tenochtitlan, to the valorous deeds of its hero, Cuauhtemoc, the last of the Aztecs, and to the ruin wrought by that prince of adventurers, Cortes; but *duos qui sequitur lepores, neutrum capit*, and I therefore take warning.

The first instalment of delegates arrived on Friday evening last, and was immediately taken possession of by a committee, the members of which extended a hearty greeting and housed them pleasantly and comfortably in quarters previously provided. The wants of the ladies in the party were looked after by a special committee of ladies, and every effort was made to emphasize the sincerity of the welcome. Others arrived during the two following days, and until the opening of the Congress the time was delightfully spent in sight-seeing. Parties were organized to visit the Castle of Chapultepec, the Monte de Piedad, the famed Shrine of Our Lady of Guadalupe, the Floating Gardens, the Cathedral, and the National Museum, while on Sunday, at noon, everybody by common consent went to watch and criticize the promenaders in the famed Alameda.

Many of the delegates drove out to San Cosme, Calzade San Rafael, to inspect the American Hospital, founded in 1886 by the American Benevolent Society, with which Dr. W. Mallet-Prevost was so prominently connected. Dr. Prevost was graduated from the medical department of the University of Pennsylvania with the class of 1887, and was universally beloved by all who came in contact with him. He died from heart-disease two years ago.

The formal opening of the Congress took place at the Teatro Nacional on the evening of Monday, November 16th. This theater, the largest in Mexico, contains five galleries, and accommodates fully three thousand persons, and some idea may be gained of the interest manifested in the proceedings when I say that it was packed to the doors, no inconsiderable portion of the audience being composed of ladies.

The meeting opened with the report of the Secretary-General of the Congress, Dr. Eduardo Licéaga. He dwelt at some length on the successful efforts of Dr. William Pepper of Philadelphia, and Dr. Charles A. L. Reed of Cincinnati, toward the holding of the first Pan-American Congress in Washington in 1893, and of the hearty coöperation of President Diaz and the members of the Mexican Government in the endeavors of the Mexican Medical Society, to make the present meeting a success. He felt that the Mexican members of the Congress had especial cause for self-congratulation at the heartiness with which their invitation had been accepted, as special

delegates were in attendance from several of the States of the United States, and from most of the countries to which the invitation had been extended, including Canada, Guatemala, Nicaragua, San Salvador, Costa Rica, Honduras, Venezuela, Ecuador, Cuba, Uruguay, and Hayti.

In response to a notification sent out earlier in the year by the secretaries of the several committees, he was able to announce that nearly three hundred papers would be read before the different sections of the Congress during the present meeting. The Secretary-General closed his address by extending assurances of a warm welcome to all the visitors whom it was the honor of the President of Mexico and the Mexican medical profession to entertain, and expressed the hope that the happy relations existing between all Pan-American countries would be made stronger, if possible, by the efforts of their representatives joined together in the common cause of humanity.

Dr. Licéaga's remarks were greeted with long-continued and hearty applause, and he was followed by the President of the Congress, Dr. Manuel Carmona of Valle.

Dr. Carmona also referred to the previous Congress, and welcomed the delegates. He then read an exceedingly interesting paper on the history of medicine and of medical education in Mexico from the time of Cortes to the present day. He said that the first chair of medicine at the University was established in 1578, one professor teaching all of the branches, the course lasting four years. From this time on the advance was very gradual, and it was not until 1768 that the Royal College of Surgeons, with four chairs, was created, and dentists, bone-setters, blood-letters, and midwives graduated. After many vicissitudes, owing to political changes in the country, the name of the medical school, in 1842, was changed to "The National School of Medicine," and in 1854 was transferred to the old Inquisition Building in the Plaza de Santo Domingo, where it still remains. At present there are thirty-six professors connected with the school, and the average attendance of students is over three hundred. The school has a library of three thousand volumes, a fine amphitheater, cabinets of natural science and chemistry, and an observatory, and is in a very flourishing condition. The requirements for admission to the school are especially strict, as no matriculant is accepted who does not possess the degree of bachelor of philosophy. The course embraces a period of five years.

Dr. Carmona then spoke of the advances that have been made during recent years in bacteriological methods, and insisted that a new classification of disease was necessary, hoping that a distinct advance in this respect might result from the present meeting. He also referred to the frequent performance of unjustifiable surgical operations, and to the constantly increasing habit of prescribing proprietary medicines.

The next address was delivered by Dr. William Pepper, who was President of the First Pan-American Medical Congress, held in Washington. He spoke in most complimentary terms of the position Mexico has gained for herself in the van of medical progress, and expressed the hope that frequent medical reunions would take place in the future between the representatives of the two countries. He referred to the discoveries of Pasteur, of Behring, and of Kitasato along bacteriological lines, and paid a warm tribute to the discoverer of the Röntgen rays, in the latter connection relating the result of some experiments recently conducted with a specially designed tube, whereby he had been enabled to see distinctly the pulsation of the human heart.

Señor Don José Gamboa then read a paper on "International Sanitary Legislation," passing in review many interesting historical facts, and ending with a suggestion to establish permanent committees in each of the capitals of the Pan-American States, to deal with all questions of quarantine and hygiene. He believed that this would make possible the adoption by all the States of uniform laws governing sanitation.

Much interest had been manifested by all the northern delegates in the personality of General Porfirio Diaz, the President, or dictator, of the Mexican Republic, and when he stepped forward to close the evening's session, he was greeted with long-continued cheers. He spoke briefly in welcome of the visiting physicians and their wives, and stated that he had every reason to hope that the results of the Congress would confer lasting benefits upon the people of the New World.

Several receptions in honor of the visitors had been arranged for the evening, and at the conclusion of the meeting these were very generally enjoyed. The Jockey Club, that most aristocratic of Mexican organizations, which is housed in the grand Casa de los Azulejos, in the Avenida Oriente 4, the Casino Nacional, and the Anglo-American Club were each and all thrown open in the most truly hospitable fashion. Pulque, mescal, and tequila, those curious products of the century-plant, and aguardiente (sugar-cane brandy) were sampled by the curious, and the vinous products of other lands, too, were not neglected.

Tuesday, the second day of the Congress, opened with the reading of a paper by Dr. Juan Santos Fernandez of Havana, on "Yellow Fever as an Obstacle to Civilization." He claimed that to the prevalence of this disease was attributable the fact that the Spanish-American countries had been backward in development as compared with the United States. Immigration from European countries had been greatly restricted on this account, and it had been thought up to the present time that there was no remedy. He insisted that by enforcing strict isolation upon those attacked by the scourge, the disease could be effectually stamped out. He had great faith in the series of experiments that were being made with a view to conferring immunity from the disease, and trusted that before many months the desired goal would be reached.

Dr. E. P. La Chapelle of Montreal next addressed the meeting on "The Subject of Bacteriology, Hygiene, and Medicine." He paid a deserved tribute to the labors of Pasteur, and said that hygiene was but the perfected prophylaxis aimed at in all of the scientist's researches. It had now reached the plane of an exact science, and was founded upon the principles of disinfection and isolation. Upon it is based the theory and practice of modern medicine. The speaker referred to the mortality of child-

hood as influenced by proper hygiene of the alimentary canal, and to the carriage of the germs of typhoid fever and of cholera by water, which could easily be prevented by the employment of hygienic precautions. The careful study of this branch of medicine was becoming universal, and he hoped that the laity would soon arrive at the point where a complete understanding of its importance would render the enforcement of sanitary laws an easy matter.

(To be continued.)

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting November 12, 1896.

WALTER LESTER CARR, M.D., Chairman.

LE ROY W. HUBBARD, M.D., exhibited a case of

CLUBFOOT, WITH ABSENCE OF TOES AND FINGERS, AND WITH CONSTRICTION-BANDS OF LEG AND FINGER,

and stated his belief that the sulcus around the right leg had the same origin as the other formations—*i. e.*, from pressure of an amniotic band.

THE CHAIRMAN remarked that it was not usual for the membranes to produce a linear constriction.

J. P. WEST, M.D., of Belair, Ohio, read a paper on

AN EPIDEMIC OF GLANDULAR FEVER,

which had occurred in his vicinity. Altogether, ninety-six cases had occurred in forty-three different families. None of the cases had developed during the summer months. The youngest child who contracted the disease was seven months old, and the oldest, thirteen years. The disease usually lasted a little over two weeks, but the active symptoms subsided for the most part after the first week. As the illness commonly terminated by a critical discharge, calomel was given in a few instances with the hope of hastening the crisis. This, however, proved a disappointment, for not only was the crisis not hastened, but the calomel produced marked prostration. In eighty-seven of the cases the liver was enlarged, and in fifty-three, there was enlargement of the spleen. The older children complained of choking sensations. The glandular swelling appeared smooth on inspection, but palpation would reveal the individual glands. As a rule, the enlargement began on the left side, and subsequently involved the right side. The period of incubation was apparently about a week. During this epidemic no cases of mumps occurred, and fifty-seven of the children had mumps either previously or subsequent to the epidemic of glandular fever. Apparently the source of the poison in glandular fever was not always the same.

DR. AUGUST SEIBERT said that he had seen about twenty-four cases during the past five years, only one of which had proved fatal. In this case, shortly after the right side had become involved in the swelling, the child became cyanotic, and died, evidently as a result of compression of the pneumogastric nerve. In one case, to which the speaker referred somewhat in detail, a diagnosis of meningitis had been made before he had seen the child, because of the opisthotonos, headache, and fever. In this case, there was an evening rise of temperature to 104° or over for nearly four weeks, and the temperature was not in the least controlled by the administration of quinin. As there was also a splenic enlargement, malaria could be fairly excluded. In making the diagnosis, it should be born in mind that there is no sore throat or tonsillitis; that the disease is usually unilateral at first, and that there is never any edema of the surrounding tissue, or suppuration of the lymphatic glands.

DR. HENRY KOPLIK said that although he had seen a large number of cases of lymphatic enlargement, he had never met with a case which seemed to him to answer the description of glandular fever, as originally given by Pfeiffer. The term was a vague one, and was not especially descriptive, although, perhaps, no better term could be offered in the present state of our knowledge. He was inclined to think that the infection of the lymph-nodes had its origin in the gut, and the absence of suppuration would indicate that it was not pyemic.

DR. FLOYD M. CRANDALL said that while glandular fever was certainly not of common occurrence, the description of it left little doubt of its title to be considered as an independent disease.

DR. ROWLAND G. FREEMAN said that the name "glandular fever" seemed to him particularly unfortunate, since it was the lymph-nodes that were involved.

J. LEWIS SMITH, M.D., read a paper[1] on

THE MODE OF EXAMINING SICK CHILDREN SO AS TO PROMOTE GREATER ACCURACY IN DIAGNOSIS.

DR. JOSEPH E. WINTERS said that success in the diagnosis of children's diseases depended not so much on skill, as upon the time, patience, and care bestowed by the physician on these cases. In his opinion it was not more difficult to make a diagnosis in children than in adults, because in the former we listen to the voice of nature rather than to the deceptive descriptions given by adults of the subjective phenomena. The less attention given to these subjective phenomena, and the more to the objective signs, the more accurate would be the diagnosis. The necessity of giving plenty of time to the examination of sick children had been well illustrated by Dr. Smith in his description of the sudden changes in temperature that sometimes followed slight emotion. It was a common, yet very reprehensible, practice, rashly to prescribe the new antipyretics for these cases of ephemeral fever in children. A few years ago he believed more deaths had been caused from the needless use of such drugs than from the pneumonias in which they were given.

DR. CRANDALL divided the children met with in practice into three classes, *viz.*: (1) the good children; (2) the timid children, and (3) the ugly children. It was easy to make the diagnosis in the good children, except among some of the older ones, who rather enjoyed the examination, and who were apt to mislead the physician if he happened to be so indiscreet as to ask leading questions. It would require much tact and patience to

[1] This will appear in an early number of the MEDICAL NEWS.

get along with the timid children. The children of the third class could be more easily managed by a quick and firm manner, than by wasting time in humoring them, only in the end to find it necessary to control them with a firm hand. As it was often impossible to make the examination when the child was quiet, it was essential that the physician should train himself to make his diagnosis even though the child was crying. It should be made a rule of practice to examine carefully not only the throat, but the whole body-surface. Those who believed that children were free from the deceitful practices of their elders would be led into serious error by some nervous and hysterical children.

DR. LOUIS FISCHER thought it should be an easy matter to differentiate between malaria and typhoid fever in children by examining the blood for the plasmodium of malaria. He thought more skill was required in examining a child than an adult.

DR. J. MILTON MABBOTT said that in view of what had been said about elevation of temperature being produced by fright, it would be well in some instances where a physician was called in to see a very nervous child, to make two or three visits of short duration rather than one prolonged visit.

DR. WILLIAM L. STOWELL recommended that in examining the throat of a refractory child, the physician should grasp the child by the back of the neck, and steady the head between this hand and the one holding the tongue-depressor. In collecting the urine of children for examination, the best plan was to use a very small silver catheter; for squeezing the urine out of the diaper or out of a sponge was entirely too crude a method.

THE CHAIRMAN emphasized the fact that many sudden and sharp fevers, as well as apparently urgent symptoms in children were often due solely to derangement of the alimentary tract.

DR. SMITH, in closing the discussion, said that he would suggest that in cases of diphtheria the physician should stand behind his patient while examining the throat, as in this way there was no chance of some of the secretions being coughed into his face. A neglect of this precaution in one instance that had come under his notice had resulted in the physician carrying home diphtheritic membrane on his beard, and giving the disease in a fatal form to one of his own children.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

The Ninth Annual Meeting, held in Nashville, Tenn., November 10, 11, and 12, 1896.

(Concluded.)

FIRST DAY—AFTERNOON SESSION.

JOHN T. WILSON, M.D., of Sherman, Tex., read a paper entitled

MENTAL COMPLICATIONS FOLLOWING SURGICAL OPERATIONS.

While surgical operations are sometimes the cause of serious mental disturbance, they sometimes cure these disturbances, especially is this the case with some melancholiacs. The question may very properly be asked, why should a surgical operation produce an attack of insanity? This can no more be answered in every case, satisfactorily, than can the question, why some persons become insane from the many other causes to which it is attributed, for in most cases these mental complications are a surprise, and no good reason can be given why they should follow. In others, however, a logical explanation might be had. If the patient is a high-strung, nervous individual, easily excited, unable to bear pain, the great and increasing dread of the anesthetic, the operation, or both, will so affect him that he will lose control of the will-power. In many of these cases, probably a majority, there is an hereditary taint or a strong neurotic tendency.

The author quoted Mairet, who thinks (1) that it is in those individuals who are predisposed by heredity or other grave causes—alcoholism, infectious diseases, etc.—that surgical operations give rise to insanity. (2) In the constituent elements of an operation that might act on the brain were two most important ones, namely, the anesthetic and the degree of surgical traumatism, with its after-effects, of which disturbed nutrition plays a very important part. (3) When predisposition, also, is considerable, the anesthetic alone may produce insanity, or it may result even after minor operations. It is, of course, necessary to take into consideration the mental state of the patient prior to the operation, especially in those graver ones where questions of life or death are frequently involved.

DR. E. S. LEWIS of New Orleans related the case of a woman, forty years of age, very hysterical, upon whom he had operated for laceration of the perineum. During convalescence the hysterical manifestations increased, and were associated with delusions. She was transferred to an insane asylum, and after a thorough examination by the physician in charge, an unfavorable prognosis was given. The family history showed traces of insanity.

In another case, a woman sixty years of age, he removed a very large adherent ovarian tumor. The operation was attended with considerable shock. For a few days subsequently the patient did well; had no fever during convalescence, but she later became perfectly insane. He had also seen after operations cases of temporary insanity which had passed off in a few months.

DR. W. E. PARKER of New Orleans had seen two or three cases of insanity following surgical operations, but had never been able to trace any history of insanity in the family. The insanity occurred in alcoholic cases. Two of the men either took morphin or cocain. In the management of such cases the particular drug, to which the patient was addicted, should still be continued in very small doses, being cut off gradually, not suddenly, as great prostration often follows the interdiction of a habit that has continued for a number of years.

DR. R. B. RHETT of Charleston, S. C., had met with two cases of mental aberration which followed the removal of the breast for cancer. A third case occurred in a young woman who had had puerperal insanity prior to operation. In two instances the insanity lasted for three days, in the other three weeks.

DR. A. M. CARTLEDGE of Louisville had only encountered what he considers pure post-operative insanity in two cases. One patient who had been in an insane asylum four years had developed a pus-tube. Just before operation the patient seemed perfectly rational, but on the third day thereafter a violent mania developed, which terminated fatally. The other case of insanity occurred in an unmarried woman, thirty-eight years old, from whom he had removed an ovarian cyst.

DR. JOHN D. S. DAVIS had encountered four cases. In one case—a young man—there was no history of insanity, but an analysis of the urine showed a great many casts and a slight trace of albumin before operation. Operative interference was followed by acute mania, which lasted seven days, and the patient recovered.

DR. JOSEPH TABOR JOHNSTON said that, in talking with Drs. Kelly and Noble, he learned that the latter had seen eight cases of insanity following perineal operations.

DR. WILSON had seen a number of cases of various forms of insanity following surgical operation, but does not think the disease occurs more frequently after operations upon the perineum and genitalia than any other part of the body. He does not think the physician is any more responsible for the death of a patient from insanity following an operation than he is for death following any other operation. He had never heard of a suit for malpractice being brought against a practitioner for a case of mental derangement from a surgical operation.

GEORGE BEN JOHNSTON, M.D., of Richmond, Va., followed with a paper on

SPLITTING THE CAPSULE FOR THE RELIEF OF NEPHRALGIA.

He drew the following conclusions:

(1) Nephralgia is not always associated with a demonstrable lesion. (2) When other evidences of kidney-disease are wanting, the pain is due to too tight a capsule. (3) Nephralgia may, and frequently does, simulate symptoms of gross tissue-changes or mechanical irritants. (4) Where severe and persistent pain in the kidney exists without other evidences of renal disease, exploratory operation is indicated. (5) When inspection, palpation, and needle-puncture fail to disclose a condition sufficient to account for the pain, the capsule should be freely opened.

J. WESLEY BOVEE, M.D., of Washington, D. C., read a paper on

URETERO-URETERAL ANASTOMOSIS

and reported an interesting case. He drew the following conclusions:

(1) Uretero-ureteral anastomosis is a perfectly feasible procedure. (2) Uretero-ureteral anastomosis, whenever possible, is far preferable to any other form of ureteral grafting, to nephrectomy, and to ligation of the ureter. (3) It should be done preferably by lateral implantation or by oblique end-to-end anastomosis, though the transverse end-to-end, or the end-in-end methods may be safely employed. (4) That constrictions of the caliber of the ureter do not usually follow attempts at suturing in closure of complete transverse section of the duct. (5) That nephrectomy for transverse injuries of the ureter *per se* is an unjustifiable operation. (6) That simple ligation of the ureter to produce extinction of the function of the kidney is too uncertain to justify its practice. (7) That drainage is not necessary if the wound be perfectly closed and the tissues throughout are aseptic.

DR. HOWARD A. KELLY said that every abdominal surgeon should be familiar with uretero-cystotomy or uretero-ureteral anastomosis, because in doing abdominal operations the surgeon was liable at any time to injure the ureter, when he would be confronted with the necessity of doing something to repair it. Dr. Kelly then pointed out the various ways in which the ureter might be cut during operations, and described the method he pursues in repairing such injuries.

DR. CHARLES P. NOBLE cited a case of neglected extra-uterine pregnancy complicated with an intraligamentous ovarian tumor. In operating, the intestines were apparently adherent over a mass of blood, and a large fleshy adhesion ran up on it. To save time, this was clamped, cut through, and the pelvis cleaned out. A hysterectomy was also necessary, as the anatomical landmarks were obliterated on both sides of the pelvis and the broad ligaments did not come down in the usual way. When the operation was completed, the patient was in collapse, and it was found that what was supposed to have been a fleshy adhesion was really the ureter and thickened peritoneum. The ureter was cut off almost up to the kidney itself. The lower part of the ureter was taken out with the mass of blood, there being only the upper three or four inches of the ureter left. Had any attempt been made to prolong the operation with the patient in collapse, death would have resulted. Although the ureter was short, it was dragged up into the upper end of the abdominal incision. It was impossible to do a uretero-ureteral anastomosis, or to switch the ureter into the bladder. Dr. Noble removed the kidney, therefore, and the patient recovered.

HENRY D. FRY, M.D., of Washington, D. C., read a paper on

PREGNANCY AND LABOR COMPLICATED BY FIBROID TUMORS OF THE UTERUS.

He advanced two propositions. (1) That the production of abortion is unjustifiable. (2) That labors presenting serious difficulty to delivery are best treated by abdominal section and removal of the child and tumor. This, while saving the life of many infants, will also diminish the maternal mortality.

Dr. A. J. COLEY of Alexander City, Ala., reported a case of cyst on the right side with a left uterine tumor, which was firmly fixed in the pelvis and complicated pregnancy. As pregnancy and labor advanced, the tumor was pushed above the brim of the pelvis, the woman was subsequently delivered naturally of a child, and is now attending to her household affairs. Dr. Coley counsels against operative interference in many of these cases.

DR. R. R. KIME of Atlanta encountered a case some two years ago, in a debilitated patient, with evidence of infection before labor. In introducing the hand a tumor was felt in the posterior uterine segment, crowding the cervix apparently above the symphysis pubis. By

waiting and placing the patient in the exaggerated Sims' position, and elevating the growth, delivery of the child was effected.

DR. HOWARD A. KELLY agreed with the conclusions of the essayist. There was a tendency on the part of the profession to interfere too much in cases of pregnancy complicated by fibroid tumors of the uterus. He had been called in consultation to see a number of such cases, but the indications were not such in some of them as to warrant the induction of premature labor. In many instances a consultation had been the means of postponing operative interference. Fibroid tumors in the upper part of the uterine body, unless large and multiple, were comparatively unimportant. If situated in the lower part of the uterus, as pregnancy advances, they should be pushed up, if possible, in order that labor may proceed naturally. On three occasions he had opened the abdomen, and had done a myomectomy for tumors complicating pregnancy, the woman subsequently going to full term, and being delivered normally.

DR. W. D. HAGGARD, SR., of Nashville mentioned a case of uterine fibroid complicating pregnancy, which came under his observation a few years ago. Hysterectomy was advised by the consultants, but not resorted to. The woman was subsequently delivered of a child, and the tumor six months later had entirely disappeared. Dr. Haggard reported a similar case.

DR. JAMES A. GOGGANS of Alexander City, Ala., had observed, during the last twenty years, a number of cases of pregnancy complicated by uterine tumors. He had seen the case referred to by Dr. Coley. He thinks it is unwise to resort to hysterectomy in a great many cases, believing that the tumors can be pushed up and delivery effected without surgical interference.

DR. JAMES MCFADDEN GASTON cited a case of dermoid tumor which complicated pregnancy. The obstruction was so great that it was utterly impracticable to undertake to deliver the woman by forceps, and it was concluded to lessen the obstruction by aspirating the tumor. This was done, and a little more than one quart of grumous material was drawn off, after which the woman was delivered with forceps of a dead child. Dr. Gaston believes that the woman will have to be subjected to a radical operation for the removal of the dermoid before perfect relief is afforded.

DR. GEORGE A. BAXTER referred to the danger of *post-partum* hemorrhage in cases of fibroids complicating pregnancy. The fibroid tumor interfered with uterine contraction, and consequently rendered it difficult to arrest hemorrhage.

DR. E. S. LEWIS said that during an experience extending over thirty-four years he had never seen a fibroid tumor which justified interference before labor; that is, a fibroid occupying the lower segment of the uterus and impinging upon the pelvic cavity. Within the past year he has delivered two women having large fibroids. In one case when pregnancy supervened, after suspension of menstruation for two months, he was unable for several months to determine the existence of pregnancy. The uterus then reached above the umbilicus, but the woman was pregnant, and was delivered at full term with forceps, and with no extraordinary difficulty. The other woman had an abdominal tumor the size of a six months' fetus. Although she had been married a number of years, she was about forty when she became pregnant. The tumor occupied the upper portion of the body of the uterus, but she was delivered without the use of instruments. He could conceive that, in a case of fibroid situated in the broad ligaments, or occupying the lower segment of the uterus, seriously impinging upon the cavity of the uterus, hysterectomy would be inevitable, but it has been his fortune to escape such cases.

DR. FRY, in closing, was glad to note that the general trend of the discussion was favorable to conservative work in the treatment of pregnancy, complicated by fibroid tumors of the uterus, and of permitting women to go to full term and trying to deliver them naturally. Some of the cases in the paper, which he did not read, exemplified the wonderful resources of nature in overcoming uterine obstructions. *Post-partum* hemorrhage was one of the serious complications of labor under these circumstances, and was common. If the placenta was attached to the fibroid tumor, hemorrhage was free. If it is found necessary to operate, Cæsarean section ought not to be resorted to, as the mortality following such a procedure was as high as eighty-four per cent. The best thing to do is to resort to hysterectomy.

SECOND DAY—MORNING SESSION.

R. R. KIME, M.D., of Atlanta, read a paper entitled

UTERINE DRAINAGE AS A FACTOR IN THE PREVENTION AND RELIEF OF PELVIC INFLAMMATION,

in which he drew the following conclusions:

(1) A uterine tampon is not a true drain, and even obstructs drainage in many cases. (2) Capillary drainage is secured by carrying a strip of gauze up into the uterine cavity, not packing it, and then it drains for a few hours only. (3) Gauze cannot even act as a capillary drain when either end of the center is constricted, or when coated with mucus. (4) Gauze, when saturated with serum, unless it contains an antiseptic, forms a hotbed for germ-development. (5) Never tampon the uterus in puerperal septic infection, except to check hemorrhage. (6) The good effect of a gauze-tampon in cases of endometritis, and after abortion, is not due to drainage, but to its effects as a tampon—*i. e.*, checking hemorrhage, stimulating uterine contractions, prolonging medication of the endometrium, and acting as a surgical dressing. (7) The uterine drainage-tube is the most essential factor in the treatment of puerperal infection, and affords the best method of securing drainage when demanded in other diseased conditions of the uterus. (8) It will save more lives, relieve and prevent more complications, than any other factor at our command.

W. E. PARKER, M.D., of New Orleans read a paper on

GUNSHOT WOUNDS OF THE ABDOMEN,

and reported thirteen cases, with six recoveries. He believed seventy-five per cent. of cases of wounds of the small intestine would recover if the cases were seen early,

the prognosis being better in this class of cases than in any other. He advised an early and rapid operation in all cases.

The diagnosis is generally easy, but when in doubt, he advised enlarging the wound or probing. In doubtful cases, he was inclined to attach much symptomatic importance to pain referred to the umbilicus. He stated that he had never seen a case where this symptom was not present. There is frequently but little shock when grave symptoms are present. Senn's gas-test was not used in any of these cases, and he spoke of it as being unnecessary in at least a majority of cases, uncertain in the hands of those not skilled in its use, and as making it more difficult to replace the intestines after sewing the wounds.

As to the technic, he said: (1) Unless the wound is well to one side, it is best to make a median incision, and it should be long enough to enable the operator to make a thorough examination of the abdominal contents. (2) The whole intestinal canal should, as a rule, be examined. (3) All peritoneal wounds should be sutured with silk Lembert sutures. Intestinal wounds should, other things being equal, be sewn in the long axis of the bowel. (4) If the liver is wounded, better results are obtained from packing than from suturing it. (5) If the kidney has been wounded, it is best to suture the peritoneal wound and treat the kidney extraperitoneally, if necessary. Of course, he did not refer to cases where the laceration and hemorrhage are so great that it is necessary to remove the kidney at once. (6) Drainage, except in late cases, is not necessary if all hemorrhage has been stopped. (7) Cases in which the intestines cannot be sutured without great risk of obstruction should be resected. (8) While enough time should be taken to do the work thoroughly, no time should be wasted. (9) Unless the bullet can be felt, search should not be made for it, as it causes unnecessary delay. (10) The superficial wound should be closed with silkworm-gut or silver wire, and the author believes that a single suture should include the skin, abdominal walls, and peritoneum.

Prognosis.—(1) The sooner the patient is operated upon the better the prognosis. (2) Those cases that have been reported in a series including all cases have shown a mortality of about sixty-two per cent. The prognosis is best in cases of wounds of the small intestine, and he believes that seventy-five per cent. of the cases will recover if seen early. By early, he means in the first two or three hours. (3) We all know that alcoholics stand all surgical work badly, and yet most of these patients have been drinking before they come under our care. The prognosis in non-alcoholics would be better than in alcoholics. (4) If the stomach and intestines are empty, the prognosis is usually improved.

After-treatment.—While not favoring drugging these patients, strychnin and other stimulants should be given hypodermically, if necessary. Especially should strychnia and alcohol in some form be given to alcoholics. Much depends on starting these patients well. If restless after the operation, or suffering, small doses of morphin should be given. If the stomach is quiet, and has not been injured, small amounts of water and Ducro's elixir can safely be given at the end of twenty-four hours, together with small quantities of milk, or some light broth. If the stomach has been injured, the feeding should be per rectum. The diet should be liquid for at least two weeks. If there is shock, with the clammy sweat that is sometimes seen, atropin, gr. $\frac{1}{60}$, should be given every three hours, as may be necessary. When shall we give a purgative? This is one of the most important questions that we shall be called upon to decide. If we give a purgative too soon the stitches may pull out, and if we wait, adhesions may form and give us trouble. The bowels of these patients will usually act spontaneously about the end of the fifth or beginning of the sixth day. If they do not, a mild purgative, assisted by an enema, should be given at the end of the sixth day, or on the morning of the seventh. As a rule, these patients should be kept in bed for at least two and a half weeks.

DR. JAMES MCFADDEN GASTON is very positive in his conviction of the propriety of laparotomy after gunshot wounds of the abdomen, and the sooner the better.

DR. N. P. DANDRIDGE of Cincinnati said that in gunshot wounds an exploration should be made in every case where there is reasonable supposition that the abdominal cavity has been entered. Gunshot wounds were much more serious than stab wounds. He had never succeeded in saving a case of gunshot wound of the intestine.

DR. A. M. CARTLEDGE had operated on five cases of gunshot wounds of the abdomen, three of them hopeless from the beginning, one dying within an hour and a half from a short operation, simply from the enormous amount of blood lost from a wound in the mesenteric vessel. He had never saved a case of gunshot wound with intestinal perforation.

DR. A. V. L. BROKAW of St. Louis considers every case of gunshot wound of the abdomen a law unto itself, and the surgeon has to meet the emergency as it occurs. He agrees with the essayist that a quick operation is absolutely necessary.

DR. W. E. B. DAVIS emphasized the importance of early operation, and called attention to the almost hopeless condition that is found if the surgeon operates after twenty-four or forty-eight hours.

DR. B. R. RHETT happened to have had three cases of gunshot wounds of the abdomen during the past year. In one case, a little boy, there were several intestinal perforations. He was operated on, but died within three hours thereafter. Case two died eleven hours after the closure of the perforations. Case three was that of a negro boy who had six perforations, and was operated on. The perforations were closed, and he made a good recovery.

DR. H. M. HUNTER of Union Springs, Ala., laid stress on the importance of early operative interference. He holds that very few patients will recover after twelve hours if not operated on, no matter how expert the surgeon may be. He had operated on a man, thirty-six hours after the receipt of the injury, who had two perforations of the colon, the ileum being just touched. The man died in three or four hours thereafter of general peritonitis.

DR. JOHN D. S. DAVIS does not believe it is possible to obtain seventy-five per cent. of recoveries from early

operations in injuries of the small intestine in private practice. The cases saved by Dr. Parker were operated on two hours after they were shot, hence early operation was the key-note to success. While he was not prepared to agree fully with Dr. Hunter that none of the cases could be saved after twelve hours, still the majority of them would die, if not operated on, within twelve hours. The most serious injuries to the belly from gunshot wounds were seldom followed by symptoms. There may be several intestinal perforations without the manifestation of any symptoms.

DR. F. W. MCREA had seen and known of several cases of penetrating wounds of the abdomen in Atlanta, all of which had terminated fatally, with one exception, and this patient was operated on by the late Dr. Armstrong. There were several perforations. A foot and a half of the small intestine was resected and the man recovered. The speaker would have some hesitancy in opening the abdomen where there was apt to be some medico-legal complication.

DR. HOWARD A. KELLY offered the following resolution which was unanimously adopted:

RESOLVED, That it is the sense of all the members of the Southern Surgical and Gynecological Association that in gunshot wounds, penetrating the abdominal cavity, the proper routine-procedure is to make an immediate exploratory incision.

DR. PARKER said, in closing, that the late Dr. Miles in his first series of cases reported thirteen cases, the percentage of recovery being nearly forty per cent. He had operated on probably twenty additional cases before his death, and the percentage of recoveries was very much better than in the first series. As to the medico-legal aspects of this subject, all surgeons should advocate the early opening of the abdomen, and if some fellow practitioner should get into trouble as a result of it, the profession should stand together and support him.

L. S. MCMURTRY, M.D., of Louisville read a paper entitled

THE EVOLUTION AND PERFECTION OF THE ASEPTIC SURGICAL TECHNIC.

The author cited cases where surgeons of world-wide reputation had infected their patients through some imperfection in the aseptic surgical technic, and said the subject deserves much more study and attention at the hands of operative surgeons than had heretofore been given to it. So far as instruments, dressings, etc., are concerned, surgeons had an absolute guarantee against sepsis in sterilization by heat; but when it came to the operative field, the hands of the operator and his assistants, they were reduced to mechanical and chemical methods of asepsis, which were certainly far less efficacious and reliable than sterilization by heat.

SECOND DAY—AFTERNOON SESSION.

E. S. LEWIS, M.D., of New Orleans, delivered

THE PRESIDENT'S ADDRESS.

Reference was made to the brilliant achievements of the masters of the art of surgery who had passed away, and of the galaxy of shining lights who had followed and who had created an era in the medical history of this century for all future time. How can we wonder that the "magnificent records obtained by experts have proved alluring temptations to the inexperienced and ambitious," and led to abuses which have left a blot on the fair page of abdominal surgery! As a body representative of the surgeons and gynecologists of the South, it should condemn the reckless and thoughtless plunging in this delicate and difficult work, without knowledge, fitness, or preparation. The statistics of the skilled who had learned to minimize risk and cope with difficulties. should not serve as an argument with the inexperienced to secure subjects. The responsibility of human life should not be ignored in the craving and struggle for notoriety or fame.

Speaking on the relative merits of the abdominal and vaginal operations, he commended the modified vaginal method of Doyen and others, as in touch with the conservative movement of the day, and in marked contrast with the ultraradical operation of Péan.

RICHARD DOUGLAS, M.D., of Nashville read a

MEMORIAL ADDRESS ON DR. PAUL F. EVE.

J. MCFADDEN GASTON, M.D., of Atlanta followed with a paper on

THE RELATIONS OF THE TUBERCULAR DIATHESIS TO ITS LOCAL MANIFESTATIONS.

He said that in considering the various forms in which tuberculosis shows itself in different structures, there must be an underlying element pervading the whole organism, which results from a general deterioration of the secretions. Whether there is a predisposition to the development of tuberculosis in certain parts or organs in advance of any constitutional disease or not, this change occurs in connection with the general impairment of the vital forces which characterizes the tubercular diathesis. While most recent authorities do not make a distinction between scrofula and tuberculosis, there is a fundamental difference in their general and local development. We have different characteristics of tuberculosis when it involves separate organs and structures of the body in a distinctly circumscribed form, or is defined as miliary tubercle in different structures, and yet the dyscrasia which marks the lymphatics under the designation of scrofula differs materially from any of the varieties of tuberculosis heretofore recognized. The presence of a condition recognized as a tubercular diathesis corresponds in some respects with the cachexia of carcinomatous tumors, and is held by many to be hereditary. It is fair to conclude that great caution should be observed in putting restraints upon the marriage of those suffering with pulmonary consumption, and the association of those laboring under this disease should be limited as far as practicable. Finally, the predisposition to tuberculosis cannot be relieved by a surgical operation upon the diseased structures, but must be corrected by remedial agencies acting through the absorbent and secretory organs.

SECOND DAY—EVENING SESSION.

A. V. L. BROKAW, M.D., of St. Louis read a paper entitled

THE RATIONAL TREATMENT OF THE DISEASED APPENDIX BY OPERATION.

He said the question had been vigorously discussed, is appendicitis a surgical disease at all times, or only surgical at times? He wished to be put on record as favoring the first proposition. He was aware that some ultraconservative practitioners claimed that the surgeon who advocated the removal of the appendix in every case when diseased, was a dangerous faddist and an extremist. He earnestly advocated early operation as soon as the diagnosis was made. Always operate when there is even a slight chance of saving a life, regardless of damage to statistics. Invariably operation should be insisted upon in the recurrent cases. With the knowledge of this dread disease evolved from the mortuary chambers, and the treacherous clinical course in a considerable percentage of cases, why should the rational treatment of all cases be other than by prompt surgery?

JAMES A. GOGGANS, M.D., of Alexander City, Ala., followed with a

REPORT OF CASES OF APPENDICITIS.

The main point at issue between the physician and the surgeon in the treatment of appendicitis depended much on a perfect diagnosis. This, too, accounted in a measure for their differences of opinion as to where the medical treatment should end, and when the surgical treatment should begin. According to his experience in the management of this affection, there is only one course to pursue, namely, to remove the appendix just as soon as the diagnosis has been made. Usually, before the operation, he gives a few small doses of calomel, followed by a saline purge, to evacuate the bowels. If opium were not given surgical interference might also save the patient.

DR. JOSEPH TABER JOHNSON looks upon appendicitis as a surgical disease, and believes it should be so treated. He deprecates the use of opium and considers it the patient's greatest enemy, in that it masks the symptoms and renders diagnosis exceedingly difficult.

DR. JAMES MCFADDEN GASTON spoke of the importance of making a distinction between cases of foreign bodies in the appendix and those of a catarrhal nature leading to a general inflammatory condition around the caput coli. Until we had inflammatory conditions which led to an exudate around the caput coli, it was difficult to determine definitely the exact condition which existed in supposed appendicitis. He was becoming more and more impressed with the fact that there were cases of appendicitis that were unattended with perforation, and these were curable without operative measures. An illustrative case was cited.

DR. F. W. MCRAE does not believe every case of appendicitis is a surgical one from the outset. A disease which shows so large a percentage of recoveries was not always an operative one. Treves and other English surgeons had shown that eighty per cent. of cases of appendicitis got well without operation. While demonstrator of anatomy, he examined every appendix which came upon the dissecting-table, and about 33⅓ per cent. showed evidences of previous inflammatory trouble around the appendix. The individuals, most of them convicts, had died of other diseases.

DR. HOWARD A. KELLY favored early operation. He alluded to the difficulty experienced in distinguishing appendicitis from tubal and ovarian disease of the right side, and related a case in point. In a woman with very high temperature and distended belly, he opened the abdomen, and evacuated a quart of pus. He found a gangrenous tube and ovary, as well as a gangrenous appendix. The patient recovered nicely from the immediate effects of the operation, but died on the thirtieth day thereafter from abscess of the liver.

DR. CHARLES P. NOBLE said the safest general rule was to operate as soon as a diagnosis of appendicitis was made.

DR. M. C. MCGANNON of Nashville recalled one case of appendicitis, a boy, in which the temperature rose to 105° F. The patient was delirious. Upon opening the abdomen, the appendix was found to be black but not perforated. It was easily removed, and the boy made a prompt recovery. He believes in many cases that if the physician waits and watches for distinct symptoms before operating, patients will die.

DR. A. J. COLEY had met with six cases of appendicitis, and made a strong argument in favor of early operative interference.

DR. A. M. CARTLEDGE said the more he operates the more he is inclined to believe we should operate on every operable case as soon as the diagnosis has been made. Mistakes were made by waiting and watching for symptoms to manifest themselves. Very few, if any, surgeons could tell when an appendix had been ruptured.

DR. GEORGE BEN JOHNSTON said, for the sake of statistics, operations for appendicitis should be divided into two classes: Those which are performed for recurrent attacks of the disease, and those which are employed for the relief of the severer varieties where perforation has occurred, or is likely to do so, or where pus is present. If the surgeon is to operate upon recurrent cases, it is better for him to do so between the attacks, in order that he may choose his time for operation. While there were cases of the disease that recovered without treatment, the best results were obtained by surgical interference.

DR. N. P. DANDRIDGE finds with increasing experience that he is more and more favorably disposed toward early operation; at the same time, cases present themselves in which he does not advise operative measures. He believes that some of the desperately bad cases were and could be saved by operation.

DR. R. B. RHETT said he had operated twenty times for this disease. He cited some interesting cases, illustrating the importance of early operation.

DR. W. D. HAGGARD, JR., called attention to the method of Gerster to prevent contamination of the peritoneal cavity in opening appendical abscesses that are

not adherent to the abdominal wall, or are not walled off. It consists in introducing thick layers of iodoform-gauze through the abdominal incision, and packing it between the walls of the abdomen and the abscess-sac itself, so that in the subsequent steps of enucleation there is no possibility of soiling the peritoneal cavity.

DR. D. FORD of Augusta, Ga., spoke in favor of early operation, believing that if cases were not operated on, sooner or later perforation would occur, followed by general peritonitis and death.

DR. W. E. B. DAVIS thought there were few cases of appendicitis that gave rise to general peritonitis, in which the surgeon could do any good. Frequently the surgeon was called too late. Even though the family physician recognizes the condition, it was not an easy matter to persuade the patient to be operated on within the first twenty-four hours, and unless these cases were treated surgically within twenty-four or thirty-six hours, very few of them could be saved. All cases of severe attacks of the disease, in which pain is intense, if seen the first day and consent is obtained, should be operated on. In all cases where there is a second attack operative measures should be resorted to.

DR. GEORGE A. BAXTER spoke of obliterating appendicitis, and asked the essayists to give their opinion of it in their closing remarks.

DR. BROKAW replied that obliterating appendicitis was nothing more nor less than the relapsing form of the disease, as a rule, or what had been termed "growling" appendicitis.

DR. GOGGANS said, in closing, that he could not better present his views on early operation than to say that if he had the disease, or peritonitis supervening upon it, he should demand operation. If he was so low that he could not stand a general anesthetic, he would take a local one, and would ask the surgeon to open his abdomen and remove the appendix.

H. M. MUNTER, M.D., of Union Springs, Ala., reported an interesting case of

COMPOUND COMMINUTED FRACTURE OF THE RADIUS AND ULNA, NEAR THE WRIST-JOINT.

He had been unable to find a similar case on record in the literature of fractures. There were three points with regard to this case: (1) That he was unaware of a similar fracture being reported. (2) He had never read nor heard of the method he had described to reduce the fracture of the forearm. (3) He had never seen nor read of such perfect results as were obtained in this case, the wrist having perfect motion; and there is absolutely no interference with supination and pronation.

DR. N. P. DANDRIDGE of Cincinnati reported a case of transperitoneal ligature of the external iliac artery for inguinal aneurism, in which he removed the aneurismal sac.

In the discussion, Dr. W. E. B. Davis also reported a case of ligation of the common iliac for aneurism of the external iliac, which was followed by an excellent result.

The following officers were elected:

President, Dr. George Ben Johnston of Richmond, Va.; secretary, Dr. W. E. B. Davis of Birmingham, Ala.; treasurer, Dr. A. M. Cartledge of Louisville, Ky.

Dr. E. S. Lewis of New Orleans was elected a member of the judicial council, to supply the place of Dr. Hunter McGuire, whose term had expired.

The Association then adjourned, to meet in St. Louis, Mo., the second Tuesday in November, 1897.

REVIEWS.

A MANUAL OF MATERIA MEDICA AND PHARMACOLOGY. Comprising all Organic and Inorganic drugs which are and have been official in the United States Pharmacopœia, together with important Allied Species and Useful Synthetics. For Students of Medicine, Druggists, Pharmacists, and Physicians. By DAVID M. R. CULBRETH, M.D., Professor of Botany, Materia Medica, and Pharmacognosy in the Maryland College of Pharmacy, Baltimore. In one octavo volume of 812 pages, with 445 illustrations. Lea Brothers & Co., Publishers, Philadelphia and New York, 1896.

THIS book is a distinct addition to those already existing in that it sets a high idea of knowledge to students of pharmacy. As our country grows older we are demanding more and more from the rank and file of this profession. We demand not only a working knowledge of drugs, but that clear, complete basis of scientific attainment upon which alone intelligent original work may be founded. This demand has led the author, for many years engaged in teaching, to prepare the book we are discussing.

The manual will be pleasing to the medical profession on account of the absence of any attempt to include more medical knowledge than is necessary to understand toxicology; for, though medicine must include a knowledge of pharmacy, the pharmacist is not concerned with the science of medicine, except in that small portion of it comprised in a limited knowledge of toxicology, and a limited knowledge of therapeutics. The author of this book evidently realizes what layman and even pharmacists sometimes forget, namely, that therapeutics, though the culmination of medical training, comprises in reality not more than one-tenth of the science of medicine, and that a knowledge of pharmacy should not afford a basis for the practice of medicine.

In this book the reader will find a complete though concise description of materia medica, both organic and inorganic, arranged in a convenient form for study or reference. To the pharmacist, the book will immediately commend itself, but we would urge its study upon the physician also. In the separation of medicine from pharmacy, as was found necessary in early days, physicians lost much and are constantly losing more. A familiarity with a good book on materia medica might do much to retrieve that knowledge of the individual properties of drugs in which the physician of former times was so much superior to the younger man of to-day. These older physicians are sometimes criticized for their habit of prescribing elaborate mixtures, and giving many drugs at one time, but these mixtures were devised for the individual case, and each

drug was given with a specific purpose. With this in mind these ancient prescriptions should not be thoughtlessly criticized without realizing the more grave pharmaceutical vice of to-day, found in the habit of using manufactured pills and mixtures. This has brought about a deficiency in the knowledge of the properties of individual drugs on the part of physicians that is hardly credible. A study of Gilbreth's book in the place of the therapeutic catalogs of manufacturing druggists would do much to remedy this evil. A return to the general use of carefully written and skilfully compounded prescriptions would be a happy reaction from the abuse of ready-made tablets, pills, and proprietary mixtures. Such a reaction can only follow from a better knowledge of drugs by physicians, and a confidence on their part that the pharmacists are maintaining a high ideal of scientific work.

We can conscientiously recommend this book, not only for its contents, but also for the convenience of its arrangement and the elegance of its typography and general make-up.

THE STUDENT'S MEDICAL DICTIONARY. Including all the words and phrases generally used in medicine, with their proper pronunciation and definitions, based on recent medical literature. By GEORGE M. GOULD, A.M., M.D. Tenth edition, rewritten and enlarged. Philadelphia: P. Blakiston, Son & Co.

IT may be accepted as axiomatic that lexicography more than any other department of bibliopoesy calls for unceasing vigilance to prevent blunders and insure a harmonious whole.

Dr. Gould has on the whole emerged with credit from this ordeal. The definitions are generally marked by terseness, accuracy, and an absence of what the most eminent philologist in the United States has termed the "talkee-talkee" element. It is particularly pleasing to find that words which have recently come into use are so well represented. The vocabulary of biological medicine, however, might well have been fuller, and of words in general use "chromicized," "hematokolpos," "blastomycetic" and "paperaceous" have been searched for in vain. "Syphilography" is given, but "syphilology" and "syphilologist" are not.

The cross-reference department shows a sad lack of supervision. To be specific: For the definition of Eberth's bacillus reference is made to the table of bacteria, and for crab-louse to *Pediculus*, but neither is to be found under the words cited. Seidlitz powder has an impertinent reference to potassium, since the definition of the phrase is to be found under pulvis. Thread-worm (of which the proper definition is any nematode worm) is defined, "see *Oxyuris*," which is defined "a genus of nematode worms, the pinworms. "This is referred for definition to *Oxyuris*. Under worm, thread-worm appears again, this time referred to *Oxyuris* and *Trichocephalus*, the definition under the latter word is "the thread-worms." In the definition of worm, the "class" *Vermes* is spoken of, but there is no such class in modern zoology.

Psorosperm in view of its association with the malarial fevers receives a definition, which is most inadequate, presenting no diagnosticating features from other protozoans. Abrasion is very much more commonly used in medicine for the surface abraded, and should have been so defined rather than "the rubbing-off of the cutaneous or mucous surface by an injury." Anthracemia and anthrax, though synonyms, both receive definitions. A cross-reference from the former to the latter would have sufficed. Eosinophile should have had a nounal definition.

The species of *Saccharomyces* appear under a "Table of Bacteria," though that genus is in no legitimate sense bacterial, being very different morphologically. Tables of statistical matter have no proper place in a dictionary whose province is restricted to the treatment of words as such and word-forms, but they are generally inserted as a concession to publishers.

There is a well-marked freedom from typographical errors, though *Saracosporidia* occurs on page 594 and *Absinthum* on page 663. Specific names appear generally in italics, but not infrequently in roman (see *Bacillus anthracis* on page 63, and bacillus anthracis on page 64), and the anachronism of capitalizing vernacular names of plants is also observable.

The appearance of the page leaves nothing to be desired and is worthy of De Vinne himself.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE, FOR THE 16 DAYS ENDED OCTOBER 31, 1896.

PURVIANCE, GEORGE, surgeon, placed on waiting orders from November 5, 1896.—October 27, 1896.

SAWTELLE, H. W., surgeon, detailed to represent Service at Pan-American Congress, to be held in city of Mexico, October 28, 1896.

WHEELER, W. A., surgeon, granted leave of absence for three days, October 16, 1896.

PECKHAM, C. T., passed assistant surgeon, directed to proceed from Port Townsend, Wash., to Detroit, Mich., for duty, October 27, 1896.

GLENNAN, A. H., passed assistant surgeon, granted leave of absence for nine days, from December 23, 1896.

PETTUS, W. J., passed assistant surgeon, to assume temporary command of Service at Norfolk, Va., in addition to his other duties, October 24, 1896.

MAGRUDER, G. M., passed assistant surgeon, detailed as Inspector of Immigrants at Galveston, Tex., October 24, 1896.

WERTENBAKER, C. P., passed assistant surgeon, to proceed from Delaware Breakwater Quarantine to Philadelphia, Pa., for temporary duty, October 16, 1896.

YOUNG, C. B., passed assistant surgeon, leave of absence extended five days, October 16, 1896.

NYDEGGER, J. A., passed assistant surgeon, to proceed from South Atlantic to Brunswick, Ga., Quarantine, for temporary duty for thirty days, October 26, 1896.

NORMAN, SEATON, assistant surgeon, granted leave of absence for five days, October 22, 1896.

PROCHAZKA, EMIL, assistant surgeon, to proceed from Cairo, Ill., to Delaware Breakwater Quarantine, for temporary duty, October 16, 1896.

CUMMING, H. S., assistant surgeon, relieved from duty at Evansville, Ind., and directed to rejoin station on expiration of present leave at New York, N. Y., October 22, 1896.

RESIGNATION.

HAMILTON, JOHN B., surgeon, resignation accepted, to take effect November 13. 1896.—October 16, 1896.

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ORIGINAL ARTICLES.

PNEUMONIA IN CHILDREN.[1]

BY J. P. CROZER GRIFFITH, M.D.,
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THE subject of pneumonia in children is too large to be discussed in its entirety on this occasion. I must confine myself to a review merely, giving particular attention to the characteristics seen in subjects under five years of age, and especially of those of two years and less. As the child grows older the unusual characteristics of the affection disappear more and more, and the symptoms finally become identical with those seen in adults.

The element of age is a very important factor in producing one or the other of the two forms of pneumonia. It would seem now generally admitted that croupous pneumonia may attack subjects of any age, although it is distinctly less frequent in children under one year old and more frequent after five years. Bronchopneumonia, on the other hand, is by far the commoner and more fatal form in children of less than five years, and especially in infants. At the same time no one is justified in pronouncing a pneumonia to be of the one form or of the other upon the age-factor alone.

The cough of pneumonia is peculiar and characteristic. It is short, sharp, and painful, and consequently repressed as much as possible. The fact that it hurts, often makes an expression of pain pass over the face of a pneumonic infant, and causes the utterance of a short cry. Sometimes in children cough is nearly or quite absent.

The difficulty in breathing gives the child no time to cry; and this suppression is a very characteristic feature. One form of cry is the well-known "expiratory moan," which is often present in severe cases. With many of the expirations a short moaning or sighing sound is made. One of the most characteristic symptoms of pneumonia is the very rapid respiration, frequently 70 or 80, or even more in the minute. The rapid breathing is clearly dyspneic also, as evidenced by the moving alæ, the tugging sterno-cleido-mastoids, the sinking in of the episternal notch and the drawing in of the lower ribs and the interspaces by the action of the diaphragm. It is the dyspnea, indicated by these symptoms, that makes the little patient unwilling to lie quietly in bed. Often the most comfortable position in the case of an infant seems to be in the nurse's arms, with the head over her shoulder.

It is a noteworthy observation that, whereas in normal breathing the accent, so to speak, is upon inspiration, in pneumonia expiration is made with the greater force.

There are some interesting peculiarities about the *physical signs* of pneumonia in children to which further reference may well be made. In the first place, there is a striking lack of correspondence between the symptoms, and the signs discovered by physical examination of the chest. Then there is the tendency for all physical signs often to develop very slowly. I have frequently in croupous pneumonia failed to find satisfactory physical signs until the disease was well under way, or, indeed, until after the crisis had occurred. Among the conditions which render percussion difficult and unsatisfactory in childhood is the peculiar resiliency of the chest at this age. Unless the blow be light and percussion carefully performed, it is very easy to overlook a limited area of dulness which could easily have been found. It is as much or more the sensation of resistance to the finger which we must seek, as it is any alteration of the sound. Too hard a blow makes the whole chest reverberate and prevents the possibility of local differentiation. I find a series of rapid light blows the best method as a rule. But in spite of the greatest care it sometimes happens that a child will pass through an attack of pneumonia without at any time revealing a dulness on percussion. Indeed, it often happens that the affected side is tympanitic rather than dull. I do not refer to the high-pitched wooden tympany of Skoda, which may often be observed in subjects of any age, but to a full, deep note which may be audible over a whole side, or, perhaps, only in front, while the back is dull. This tympany may occur in adults as well, but is much oftener heard in children. Quite often it is present even when there is distinct alteration of the auscultatory sounds over the same area. Often,

[1] An address delivered before the Lycoming County Medical Society.

indeed, we may make a diagnosis as easily from the tympanitic note as we could from an impairment. The tympany may last several days and then may or may not be replaced by dulness; or a part of the lung may grow dull and another part may remain tympanitic in spite of other signs of consolidation. This condition of tympany may continue nearly, or quite, until the crisis has taken place. The brief details of the following case—not an unusual one—illustrate this fact:

Susie A., aged six years, was taken suddenly ill with fever and headache. Examination showed numerous scattered râles in the lungs with increased vocal resonance on the right side in front and a decided tympanitic note there. The provisional diagnosis of pneumonia was made. Upon the following day below the right clavicle there were greatly increased vocal resonance and a percussion-note which was more tympanitic and lower pitched than upon the left side. On the fourth day, harsh expiration was added to the other physical signs in front, while behind, down to the angle of the scapula, there was a slight impairment of percussion-resonance. On the sixth day the tympanitic note in front was unchanged, but respiration had become decidedly bronchial. Only by the eighth day of the disease had dulness appeared in front with a still further increase of the other physical signs of consolidation.

Repeatedly in bronchopneumonia the most careful examination will reveal merely a very small area in which there is some impairment of resonance. This condition is the natural result of the diffuse nature of the lesion, only small lobular areas here and there being involved in many cases.

In typical cases of croupous pneumonia the auscultatory signs are naturally the same as in adults. In other cases, however, which are nevertheless just as distinctly pneumonic, either of the croupous or the catarrhal form, a weakening of the respiratory murmur may be all that can be detected; or perhaps there is a slight roughening of it, or a slight prolongation of expiration. In many other instances there is no alteration whatever to be discovered. This occurs in cases in which the lesion is very small, or perhaps centrally located.

It is important to remember that bronchopneumonia is quite usually, and croupous pneumonia not infrequently, preceded by a bronchitis. Consequently mucous râles may perhaps be found present during the whole course of the attack. In many instances we may base a diagnosis upon these râles. In bronchitis, for example, the râles are wide-spread, or, if heard in one situation one day, are very likely to be audible only in another place upon a subsequent examination. If, however, we find râles which persistently remain audible in only one place, we have reason to presume that in this spot there is an area of pneumonic lung. The true crepitant râle is sometimes heard, but oftener not found. A peculiar ringing quality, what may be called an increased vocal resonance of the râle, is often present and is very characteristic of pneumonia. It has not infrequently happened that I have been able to locate a bronchopneumonic area by noticing that whereas the râles in other parts of the lungs were all of one kind, those audible over a small area had this peculiar character described. In the absence of cry this may be our only way of testing vocal resonance; and in my experience vocal resonance is one of the most reliable tests for pneumonic lung in children. If the child does cry it is likely that we can hear some increase of vocal resonance in the area to which the râles have drawn our attention.

There are several minor subdivisions of pneumonia described, some of which are rather more characteristic of children than of adults. Prominent among these is that known as *abortive pneumonia*. In this class are contained the cases so commonly described as "congestion of the lungs," a term which is much better omitted from our medical literature, so far, at least, as it relates to a condition bearing any relationship to pneumonia.

Abortive pneumonia is seen especially in children. All the ordinary earlier symptoms of croupous pneumonia are present, but the physical signs are usually almost negative, and the whole process stops suddenly in a few days. In a smaller number of cases distinct physical signs develop, but rapidly resolve, just, perhaps, as we expect to encounter a severe case of the disease. Although abortive pneumonia must be familiar to all, I venture to give the following history:

A. A., the one-year-old child of a physician of Philadelphia appeared to have taken cold on the night of March 14th, and on the morning of the 16th had some fever and nervousness, and a cough, which appeared to be painful. A few diffuse râles were audible in the chest. By the afternoon of the same day he looked very ill, had a temperature of 103° and respiration of 80, with some cyanosis. Numerous râles were heard in both lungs, but no evidence of consolidation was found. The child presented all the appearances of a case of beginning croupous pneumonia, but by the next day, the 17th, after not more than thirty-six hours' sickness, he was very greatly better, with a total change in his general condition. His state continued to be excellent, without fever, but with rather numerous, although

diminishing, coarse râles in the chest. Not until about a week after the first development of symptoms was a decided increase of vocal resonance discoverable over the upper part of the right lung behind.

This case is not only a beautiful instance of a form of abortive pneumonia, but it exemplifies, too, the late development of physical signs in some cases.

Creeping or wandering pneumonia is a well-recognized form in adults as well as in children. It is, perhaps, oftenest seen after influenza, but may occur independently of this. One part of the lung is affected, then another while the first clears up, the symptoms meanwhile continuing in full force, so that the course of the affection may be unusually prolonged. Of course, the ordinary attack of bronchopneumonia is of a creeping nature, the process gradually extending from one part of the lung to another, usually, however, with no tendency to resolution until the attack begins to approach a favorable termination.

Cases exhibiting a pseudo-crisis cannot be called true instances of wandering pneumonia, nor, strictly speaking, of relapse. In this condition the temperature falls, and convalescence seems established, when there is another rise, perhaps with an involvement of some other part of the lungs. It may be that the temperature is not quite normal, yet the condition of the child is such that immediate recovery is expected. In a case which I recently saw in consultation, a little boy of twenty-three months had suffered from an attack of croupous pneumonia in the left lung, beginning October 16th. On October 19th the temperature was 105°, but on the 20th it had fallen to 100°, all the symptoms were greatly improved, and the physician in attendance had very properly pronounced the child about to convalesce. Upon the following day, however, there was a sudden return of all the symptoms in an aggravated form, together with physical signs of consolidation in the other lung. This second attack lasted several days. When I last heard of the child, about three weeks after the onset of the disease, he was running about in perfect health, as it seemed, but with the physical signs of consolidation unchanged—another instance of the delayed resolution, to which reference will be made later.

Pneumonia gastrica is a well-marked form in children. The attack starts with vomiting, coated tongue, pain in the abdomen, and perhaps diarrhea; and only after a day or longer can the diagnosis of pneumonia be made. The following case shows how pneumonia may develop in this way, and the family suspect no more than a severe attack of indigestion:

Harry A., aged about eight years, was taken sick October 18, 1886, with headache, high fever, and vomiting. The vomiting continued unabated on the 19th, and on the 20th, the third day of the attack, the child was worse than at any preceding time. There was now great loss of appetite, with fever, thirst, and slight delirium, and vomiting of everything taken. There was a loose bronchial cough merely, such as he had had for several weeks. When I first saw him, on the fourth day of the disease, he was still vomiting as before, his temperature was 101.2°, and there were also found distinct physical signs of pneumonia in the right lung. By the 23d, the sixth day of the disease, the child was convalescent and the physical signs had nearly disappeared.

Finally we may mention cerebral pneumonia, in which the disease appears to be a meningitis rather than an affection of the lungs; or in which the early symptoms for some days are cerebral rather than pulmonary. The following case illustrates the nervous symptoms accompanying this form:

Ambrose G., aged five and one-half years, was taken sick on February 13th with headache, vomiting, and moderate diarrhea. February 14th, condition was unchanged, except that the diarrhea had almost ceased. February 15th. Seemed bewildered in the morning; quite delirious during the greater part of the remainder of the day. Temperature 103° at eight P.M. February 16th. Diarrhea and vomiting ceased. February 17th. Still delirious at times, especially at night. Temperature for the last two days 102 to 104°. February 18th. General condition rather better. No complaint. No tenderness anywhere. Had been having a slight cough, but nothing of note. February 19th. Seems very dull most of the time. Temperature 103°. Very little cough. Dr. Wm. Osler, who saw the child with me on this date, considered the diagnosis obscure, but leaned toward typhoid fever or tuberculosis. February 21st, the ninth day of the disease, there were physical signs of pneumonia present for the first time, *viz.*, bronchial expiration and broncophony below the right clavicle. The temperature was falling, and was now 101° and a fraction. February 23d, the eleventh day of the attack, the temperature was 99°, and the child in good spirits and rapidly convalescing. The auscultatory signs of pneumonia were, however, even more marked than before, in spite of the low-pitched tympany over the affected area. There was, and had been, very little cough.

Different as croupous pneumonia and bronchopneumonia usually are in their symptoms, so, too, are they unlike in their pathological anatomy.

Like, too, as the symptoms are in some cases, so even at the autopsy we may be at times not able easily to complete a diagnosis which was uncertain during life. In some instances we may find *post mortem* a combination of a fibrinous and a catarrhal inflammation. There may be either an inflammation of one sort in one part of the lung and of the other sort in another, or it may even be that the fibrinous and the catarrhal processes are intimately associated. Of course, in ordinary cases the characteristic of croupous pneumonia is the exudation of fibrin within the vesicles. The lung, a lobe, or perhaps only a small portion of pulmonary tissue presents the firm, granular, liver-red appearance so well known. In bronchopneumonia the characteristic is the peribronchial and perialveolar inflammation. The whole lung does not compress as well as it should, and some hard nodules can be felt here and there in it. Section of one of these pneumonic nodules shows this portion to be light-colored and more projecting than the surrounding dark-red collapsed areas and the healthy lung-tissue. Close inspection of the affected region shows small bronchioles, whose lumen is filled with mucus and whose walls are thickened and whitish. In many cases of bronchopneumonia nearly a whole lung may be apparently uniformly consolidated; but even then bands of healthy tissue may be found, and careful examination shows the characteristic appearance of the bronchioles.

In acute tubercular bronchopneumonia the process rapidly goes on to the formation of cheesy nodules, and to a breaking down of lung-structure if the child lives long enough. We must remember that it is never by the fact that the disease is lobular, that the diagnosis of bronchopneumonia can safely be made since fibrinous pneumonia does not need to attack a whole lobe of a lung, and bronchopneumonia, as just stated, may do this. It is on the minuter characteristics described that the diagnosis must rest.

In croupous pneumonia, while any part of the lungs may be affected, the apices seem to be involved oftener than they are in adults. Statistics indicate that the disease is commonest at the right apex, and next so at the left base. This liability of the process to occupy the apex in children is frequently forgotten, and, as a result, the lesion is often overlooked when making a physical examination of the chest. It has long been claimed that apical pneumonia is especially liable to be attended by cerebral symptoms. This is a point which is now much disputed. In my own experience I have not been able to detect any especial tendency to cerebral disturbance in cases of apical localization. In croupous pneumonia the disease is unilateral in the greater number of cases. In bronchopneumonia on the other hand, the disease is usually bilateral if the case is at all a severe, prolonged one. The apex, however, is not commonly involved in this form, except in tubercular cases.

We may now properly turn to the question of the diagnosis of pneumonia; or, rather, to some of the difficulties which attend it, for the points which are entirely clear may well be omitted in this sketch. Croupous pneumonia is often peculiarly like scarlet fever in its onset. The sudden rise of temperature, with rapid pulse, and with the convulsion or vomiting, which so often ushers in both diseases, may leave us in doubt at first.

Croupous pneumonia can hardly be confounded with bronchitis, unless in exceptional cases, but bronchopneumonia must be carefully distinguished from it. This is often a difficult matter to determine, particularly when the bronchitis, which usually precedes, has had added to it the pneumonic condition. Bronchitis is rarely accompanied by much fever or by dyspnea of any moment. When, therefore, in the course of a bronchitis, there is a rise of temperature, accelerated respiration, and a change of the loose or harassing cough to one which is short, painful, and suppressed, we have reason to believe that pneumonia has developed, in spite of the absence of physical signs. When the diagnosis is doubtful, we may take it as a pretty safe rule that we have to do with pneumonia, rather than bronchitis. Here I may say a word about the so-called *capillary bronchitis*. I have never seen a case of pure capillary bronchitis, and the best authorities are disposed to deny the existence of such an affection as an independent disease. While it is conceivable that the smallest bronchial tubes might be involved independently of the alveoli, yet, as a matter of fact, it is probable that this never occurs. Certainly, we are not justified in calling a case one of capillary bronchitis merely because we fail to find signs of consolidation. Of course, the beginning of every bronchopneumonia is a capillary bronchitis, but the process does not stop here, and involvement of the alveoli rapidly follows.

The diagnosis between bronchopneumonia and croupous pneumonia is often easy, often difficult, and often impossible. This last must necessarily be the case sometimes, owing to the existence of mixed forms. In croupous pneumonia the onset is sudden, there are the usual

signs of pneumonia as seen in the adult, the course is short, and the termination is generally by crisis. In bronchopneumonia, on the other hand, the onset is gradual, the dyspnea often greater, the temperature rises more slowly, and its course not so high and more irregular, and the termination, if favorable, is by lysis. The physical signs, too, are more indefinite, dulness being less marked and the alterations of the respiratory murmur more difficult to detect. Yet this statement of the differences is open to numerous exceptions. In bronchopneumonia the onset may be sudden, with convulsions and high temperature, and we may have an area of consolidation develop in which the physical signs are as marked as in cases of croupous pneumonia. On the other hand, in the latter disease the lesion is sometimes very limited, or even undiscoverable. The following case, in its onset and the rapidity of its development, had the most characteristic appearances of the croupous form, although its course, and still more the autopsy, showed that it was not such:

Katie H., aged three years, had had no appetite and had not seemed perfectly well for several weeks, and had had an insignificant cough; but had been playing about. On the evening of February 1st, she developed fever and accelerated respiration with a catch in it. February 2d, temperature in the morning, 104°; respiration of the same character as on the preceding day; alæ moving; frequent, short, hacking cough; numerous fine crepitant superficial râles at the base of the right lung, in front and behind. February 3d, the third day of the disease, respiration rapid; cheeks flushed, short, suppressed cough; bronchial expiration over the middle of the right lung behind. February 4th, marked bronchial inspiration and expiration over the middle of the right lung behind. February 5th, child a little cyanotic; marked dulness over the upper two lobes of the right lung. Delirium set in; fever continued, but was of an irregular type, and respiration was much labored. On February 11th, the eleventh day of the disease, the lower lobe of the right lung became involved. On the 13th there was a fall of temperature to 99°, with cold sensations, and it appeared as though crisis had taken place, but on February 14th the temperature rose again, and there were indications of general involvement of the other lung. On February 16th there were very many mucous râles everywhere. These had been present in increasing numbers from early in the disease. The condition of the child grew worse from this time on, yet without increasing consolidation, and even with apparent improvement in some of the physical signs. Death took place on February 25th, the twenty-fifth day of the disease. The diagnosis was croupous pneumonia, yet with a very anomalous course. The autopsy, however, showed a wide-spread acute tuberculous bronchopneumonia in both lungs.

Such a case as this is sufficient to upset all one's preconceived ideas about the diagnosis of the two forms of pneumonia. Fortunately, such a striking similarity in the early symptoms is not often observed, for I know of no way whatever to arrive at a certain diagnosis.

In children, the difficulty of diagnosing pneumonia from pleurisy is enhanced by the fact that the breathing in cases of effusion is often very tubular, and that fremitus may even be present. The hypodermic needle will usually settle the question, and may be relied on as the most certain method of diagnosis. But even this sometimes leaves us in doubt, for a "dry tap" is, for various reasons, sometimes obtained, even when fluid is present. It is seldom, however, that repeated tappings will fail to reveal fluid if there is any. The following case was one of great interest and perplexity to me at the time, and one which so well illustrates the difficulty of diagnosis, that I may give it in brief here:

Catherine M., aged eleven years, had had for some time fairly well-compensated valvular disease of the heart. When first seen, October 19th, she had been suffering for three days from what her physician had pronounced to be pneumonia. Examination on this date showed the usual symptoms of pneumonia, with the physical signs, *viz.*, dulness of the left axilla, left base behind, and right apex behind, with bronchial breathing over the dull areas. On October 23d, four days later, the dulness was extreme on the left side, particularly below, and there seemed to be some shifting of it, with change of position, making the presence of fluid possible. Yet tactile fremitus was but little diminished, and the voice was distinctly transmitted. The diagnosis being in doubt, a hypodermic needle was used, but gave a dry tap. On the next day, October 26th, vocal fremitus was absent over the left chest; the dulness increased as the base was approached; the breath-sounds, although audible, were faint —all speaking for effusion. On the other hand, the heart was not displaced, the interspaces moved in with inspiration, there was no alteration of the line of dulness with change of position, and very distinct mucous râles could be heard over the dull area—all this speaking for consolidation, with deficient action of the lung. On November 5th the left side measured three-eighths of an inch more than the right; the respiratory murmur was distant and vocal resonance feeble—speaking for effusion. On the other hand, the bulging præcordium from chronic heart-disease could easily account for the enlargement of the left side, and the heart was still beating in the normal position. On November 11th the

movement of the chest was chiefly on the right side, the dulness was still very marked in the left axilla and behind; vocal fremitus was absent, the breath-sounds feeble, spoken words reached the ear indistinctly. Moreover, this was now the twenty-fifth day of the attack. All this seemed to indicate, beyond doubt, that there was a pleural effusion. However, the heart was in the normal position, and occasional râles could be heard at the base and in the axilla. Besides this, repeated tappings during the days past had failed to find fluid. About this time, too, I was convinced by the intensity of the transmitted sound of the cough that I had to do not with effusion, but with a delayed resolution in a consolidated lung which did not expand, and the tubes of which were probably blocked with mucus, so that the air did not enter it to any extent. The further course of the case confirmed the diagnosis, for as the lung began to resolve and to have air enter it, the signs of consolidation again showed themselves as at first, and there were none of the series of alterations of physical signs characteristic of a disappearing effusion.

Cases of this nature repeatedly occur, in which the diagnosis upon one day seems to lean toward consolidation, and upon the next toward effusion. The possibility of the combination of the two diseases renders the diagnosis still more difficult.

Delayed resolution in pneumonia is a matter to which far too little attention is given in most textbooks, since it is a condition which greatly obscures the diagnosis. One is unable to satisfy one's self by consulting medical literature how long a pneumonic consolidation may persist and yet indicate no phthisical changes. In adults I have repeatedly seen resolution delayed for weeks, and in children this seems to be even more frequent. In many cases of delayed resolution the fever subsides and yet the consolidation continues; but in other cases the fever persists. In the case just related the consolidation was present for at least nine weeks. In the following case the delay of resolution was even greater:

S. A., girl of six years, was attacked toward the end of September by croupous pneumonia, which involved first the right lung, and then the left, the right side meanwhile clearing up. Resolution was thus delayed, and the temperature fell by lysis, reaching normal by the nineteenth day of the disease. At this time purpura developed as a sequel. The child recovered from this attack and was out of bed in about a month after the onset of the pneumonia. The left lung still showed loud bronchial breathing, bronchophony, and dulness, on percussion. The child was not seen again until the following March, a period of five months. At this time she was running about apparently well, except for a loose, troublesome cough. The lung was still consolidated throughout, with bronchophony, coarse mucous râles, and other signs which made me believe that there undoubtedly was phthisical softening going on. Later, after a period of several months more, I saw the girl again and found her entirely well. The consolidation must then have lasted decidedly over five months.

The delayed resolution spoken of appertains to croupous pneumonia. In bronchopneumonia, too, resolution is sometimes very unusually delayed. The following case indicates that hope may never be abandoned in this disease until death is actually present:

Mamie C., aged about two years, was admitted to the Children's Hospital in Philadelphia in the early spring, suffering with bronchopneumonia. There was a well-marked patch of consolidation in the upper part of the right lung behind. There was daily fever of a somewhat hectic type. The child constantly grew paler, and more wasted, and had every appearance of being a sufferer from phthisis. In the course of the summer she was several times sent to the County Branch of the Hospital in the hope that the fresher air would do her good; and several times was returned to the main hospital apparently in a dying condition. By the autumn she commenced to improve, and did so rapidly, losing at last all consolidation, and regaining entire health.

I may say of this case that I never felt more sure of a diagnosis of phthisis, and had never less hope of any improvement whatever; also that the attendants were on several occasions daily expecting the child to die. Her final recovery, therefore, was a correspondingly great surprise.

I have still to refer to the curious cases of pneumonia in children in which the cough is nearly or entirely absent. The case of Ambrose G., already referred to, was an instance of a very slight development of cough, and the following case illustrates its absence in a still more striking manner:

Mary Agnes McC., aged eight years, was admitted to St. Agnes Hospital, October 27th, suffering with chorea. She was put to bed and given Fowler's solution. Improvement continued until November 15th, when she became suddenly ill. Her pulse rose to 170, and her respiration equaled 80 and 90, and was quite shallow. She complained of great abdominal pain and tenderness. A purgative, followed by an enema, and by turpentine stupes, gave no relief. As her aspect was that of a very ill child the resident physician called upon me to tell me of the case, saying that he feared arsenical poisoning. After careful questioning I assured him that there were no toxic symptoms, but said that I suspected peritonitis. Upon the following day I saw the child in the presence of several physicians from the Philadelphia Poly-

clinic, and none of us had any doubt that we had to do with a peritonitis. The feet were drawn up in bed, the abdomen distended and very tender, and the expression anxious. There was some fever, and the child complained of abdominal pain. The respiration was shallow and rapid, as one sees it in a peritoneal inflammation. Although there had been no cough whatever I examined the chest as a matter of routine, and was surprised to find well-developed signs of pneumonia in the upper part of the right lung. Upon the next day, the 17th of November, the abdomen, although still tender, was much better, and by evening all pain had disappeared. It was evident by this time that the diagnosis of peritonitis was untenable, and that the pain was evidently a referred pain. The pneumonic condition rapidly extended, the attack was an unusually severe one, cyanosis set in early, and the child died on the 18th or 19th. Cough was so little of a feature that there is some disagreement among the attendants whether there was any at all.

This tendency of children to refer pain to some other part of the body than that where it is actually produced is well known. The case just related exhibits pain referred to the abdomen; for there was no reason to think, as the course of the disease progressed, that there was also a peritonitis. As a counter-case to this, emphasizing the difficulties in diagnosis, I may mention an instance which occurred in the Children's Hospital during the service of one of my colleagues, in which peritonitis was supposed to be pneumonia.

The likeness of pneumonia to cerebral affections, and particularly to meningitis, has already been mentioned in speaking of cerebral pneumonia. Sometimes the diagnosis is impossible, particularly in the light of the fact that the two diseases are often combined. Many a child with pneumonia will show well-marked symptoms of meningitis, and yet have no inflammation of the meninges.

With regard to prognosis, the very great majority of cases of croupous pneumonia in previously healthy children will recover. The prognosis of bronchopneumonia is very much less favorable, and the bronchopneumonia consecutive to measles, whooping-cough, or diphtheria is one of our most fatal affections.

In considering treatment we must first attend to prophylaxis. The great danger of bronchitis in infants is its tendency to run into bronchopneumonia, and even croupous pneumonia not infrequently follows a few days of bronchitis. Consequently, every child must be carefully guarded against taking cold, and be most carefully treated if bronchitis is already present Suitable hygiene of the house and of the clothing, and of the life in general, will aid in the first; confinement to bed and proper medication, external and internal, fulfils the second indication.

Regarding the treatment of an attack of pneumonia, I may first speak of the use of applications to the chest. The cotton jacket has not, in my opinion, any of the great value which is attributed to it by so many practitioners. I have treated children with it and without it, and I have never been able to see that those without it were any worse off. If the jacket is applied with the idea that we thus prevent taking cold and increasing the pneumonia, we are working upon an entirely incorrect principle; for, since croupous pneumonia is an infectious disease, the influence of "taking cold" is probably slight when the disease is well under way. We well know, too, that it is by no means the part exposed which suffers, even in a general cold. For instance, wetting the feet is a common source of cold in the head. For the same reason, then, that we wrap the chest up in cotton in pneumonia, we should envelop the whole body in cotton in order to avoid chilling of any region, and thus increasing the pulmonary disease. Indeed, the use of a cotton jacket renders the skin more susceptible when the physician makes his examinations of the chest; and if it is capable of doing good, it is equally capable of doing harm. Of course, these statements do not mean that we should be reckless in exposing the child to chilling. All draughts are to be carefully avoided, and the child must constantly be properly covered with bed-clothes.

Here I may say, however, that we, as physicians, should hold in check the strange desire so many mothers have to burden a feverish child with a vast quantity of bed-covers. Infants cannot, of course, complain, and even older children, when apathetic, as they become with the disease, will not make complaint of being too hot.

What I have said with regard to the cotton jacket applies in some respects to the use of the jacket-poultice. I would strongly protest against its routine employment. There is not any evidence that the poultice is in any way curative, and it is certainly often heavy and uncomfortable, and renders respiration more difficult. This statement, like the last, is open to exceptions, and I by no means intend to condemn the poultice absolutely—only its routine employment. It should be used for exceptional cases, and with a definite purpose. I have seen the application and frequent renewal of a light, hot jacket-poultice give the greatest relief in the intense dyspnea which

is particularly apt to accompany bronchopneumonia. I do not know how it acts in these cases, unless by relieving the bronchitis, but the good it does in ameliorating the symptoms is sometimes very prompt and decided. Care must be taken that the poultice is properly applied, as otherwise it soon slips down and covers more of the abdomen than of the chest. Other applications are of less value. Blisters are not proper treatment for infants, in my opinion, and are not indicated in older children. Rubefacients, such as turpentine and mustard, are of value in bronchial catarrhs following pneumonia, or occurring independently of it, rather than in the pneumonic process itself. Dry cups may sometimes be of service. The use of ice or of ice-water compresses on the chest is a valuable procedure where there is much pain, particularly if the fever is high, since it acts as an antipyretic as well.

The treatment of fever in pneumonia is an interesting subject. Ten years ago the medical world acted on the principle that high temperature, by whatever caused, ought to be reduced at all hazards. Now there is a tendency to let the fever take care of itself. Whether or not high temperature is to be treated depends altogether upon the individual case. If convulsions are threatening, or actually going on, and we have reason to believe that they are due to hyperpyrexia, no time should be lost and the temperature should be lowered at once. So also if a child is restless and uncomfortable, as a result of high fever, the temperature should be reduced. Again, if the temperature in bronchopneumonia is persistently high, and we have reason to fear the action upon the tissues of such continued elevation, it is proper to take measures to alter the condition. But to treat fever simply because it is fever, is, I think, a mistaken policy. How the temperature shall be reduced is the question which naturally arises. Ten years ago every one turned at once to the internal antipyretics. Now the tendency is to decry them in a wholesale manner as harmful. As with nearly everything else, the truth, it seems to me, lies in a middle course. I have seen the whole aspect of a case changed and impending convulsions aborted by the administration to a child of a drug of the coal-tar antipyretic series. In my experience, children bear these drugs, as a rule, remarkably well; better than adults do. A series of observations upon the use of these drugs in children, which I published two or three years ago,[1] thoroughly convinced me of their value in properly selected cases. As a rule, however, I think that hydrotherapeutic measures are to be preferred. Sponging is of great service, and the tepid tub-bath is invaluable for reducing fever and allaying nervousness in children. It will act efficiently, when water of the same temperature would have failed in adults. Where this does not succeed we should not hesitate to proceed to the use of the cold tub-bath, exactly as in typhoid fever. It is a mistaken idea that the cold bath must not be used because we are dealing with an inflammatory disease of the chest. I have repeatedly used the cold bath, both in adults and children suffering with pneumonia, and never with bad results. Here again, the nervous symptoms are more a guide for its use than is the mere elevation of temperature.

In this connection I may speak of the hot bath; not used for any action upon temperature, but for its surprising influence upon the general state, and especially on the dyspnea. In the case of children, especially infants, who are extremely dyspneic, cyanosed, pallid, and apparently nearing death, a plunge into a hot bath of 105° or 110° often causes a vigorous reaction with renewed respiratory power. The child should be kept in the bath from three to at the most five minutes, and then wrapped in blankets. I was sent for by a physician living in New Jersey to see his baby, ill with pneumonia. The child's condition was as I have described. I advocated a hot bath, which the father was almost afraid to give, since the state of the child was so very low. While admitting that the procedure seemed rough, and was not devoid of danger, I still urged that death would certainly take place soon unless some change could be brought about. The effect was excellent. The blue color disappeared, and the natural color returned; respiration was made greatly easier, and the other symptoms were correspondingly improved. The baths were given repeatedly during the illness, and I think they would have succeeded in saving the child's life had I not reason to believe, from subsequent events, that the case was one of tubercular bronchopneumonia and consequently hopeless. This treatment with the hot plunge-bath is good, I may say, for other conditions where death seems imminent from failure of respiration, as, for instance, in atelectasis, and I have seen children recover who were apparently moribund.

The antitoxin described by the brothers Klemperer was hailed with enthusiasm, but has not obtained a foothold. The few cases in adults in which I have studied its action were not helped by it.

[1] *Archives of Pediatrics.*

There is no one line of treatment which can be followed out in every case. The physician who says that he treats pneumonia in this or that way, as though it were some harmful beast to be slain in some definite manner, falls far short of a true understanding of his subject and of his duties to his patient. What drugs we shall select depends entirely upon circumstances. In some instances aconite seems to be of distinct value, especially early in the disease; yet it is a medicine which must be used with care. I have thought that I got good results from aconite especially in children. Digitalis is certainly of service in many cases, yet caution must be observed not to drive the heart too much. Alcohol is a standby whenever we fear failure of the vital powers. Strychnin is useful for the same purpose, and as a respiratory stimulant as well, and may be given in large doses to children in suitable cases. There prevails, to some extent, an ill-founded fear of opium. It is a drug of extreme value in many instances, yet one which must be used carefully, especially where the patient has any increasing tendency to apathy or mental dulness. Under such conditions, it is hardly safe to give it at all to children. Ammonium carbonate is a disagreeable drug, but one which seems to be useful in some instances. It is not now, however, viewed as the proper routine treatment, as it once was. I myself give it comparatively seldom. Ammonium chlorid has seemed to me of service, particularly in bronchopneumonia, although some writers deny it any special value. In strong children, oppressed by a large secretion of mucus, an emetic of ipecacuanha often gives great relief, but it is only exceptionally that it is indicated. The use of vapor, especially under a tent of blankets, is sometimes of much service, when dyspnea is urgent. The value of inhalations of oxygen for cyanosis is never to be forgotten.

LOCAL QUARANTINE.

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THE general principles governing the local quarantine of contagious diseases in this State have been but recently reaffirmed by a circular of our Board of Health. I shall, therefore, content myself with a criticism of some of these regulations, and some suggestions looking toward their better administration and a lessening of the hardships sometimes following their execution.

What to quarantine.—This has been settled for us by the circular referred to. To the list[1] there given of contagious diseases, the writer would be glad to see added gonorrhea and syphilis. He is well aware, however, that this is possible only in the sanitary Utopia of the future.

Whooping-cough should certainly be placed upon the list of diseases which should be placarded. This disease is so little feared by the uneducated portion of the laity that very many cases are never seen by a physician until the occurrence of pneumonia, bronchitis, or other febrile complications alarms the relatives. As Dr. Sweemer pointed out to this Society a year ago, the mortality of this disease is greater than that of scarlatina. The great length of time during which the patient may infect others, and the necessity of allowing the children to exercise in the open air, render the enforcement of strict isolation particularly onerous and difficult. Perhaps the method in use in Germany to indicate the bearer of a fresh vaccine vesicle, a piece of colored cloth attached to the sleeve, might be employed.

Tuberculous patients, too, should be reported and put on the "suspicious list," to the extent of receiving instruction, supplementing that of the medical adviser, concerning the dangers of indiscriminate expectoration. A proper record of these patients would enable the authorities to enforce proper disinfection of all premises vacated by reason of their death or removal.

How to quarantine, and do it effectually, is a problem, which has not, as yet, been wholly solved. The usual method of placarding a house containing a case of contagious disease, is still looked upon, by altogether too large a portion of the laity, as a concession to a medical fetish. Officious and sympathetic neighbors will run in, and children not yet sick will be sent on errands or out to play, in spite of the admonitions of the medical adviser and health officer. It is difficult to prevent this without placing guards at each house, as was done during the recent smallpox-epidemic in Milwaukee. But here the financial specter lifts its warning hand.

Nor will the establishment of an isolation-hospital, however well appointed and managed, remedy the evil. Recent experience shows that a large portion of the populace will resist to the utmost the removal of patients to such an institution. Education, which requires time, seems to be the only remedy. The fear of loss of occupation, and consequent privation or destitution has,

[1] Asiatic cholera, yellow fever, smallpox, typhus fever, leprosy, bubonic plague, diphtheria, scarlet fever, typhoid fever, measles, rötheln, and whooping-cough.

in my experience, been the cause of delay in sending for a physician, with correspondingly increased opportunities for the dissemination of infection, and greater severity of the original case. The writer knows of several cases where great hardships were inflicted upon boarders, especially upon teachers, by an outbreak of contagious disease in their place of domicile. The fact that they came from an infected house debarred them from entrance into other boarding-places.

The establishment of a "House of Detention," to which such exposed persons could be taken, bathed, disinfected, and observed, until the period of quarantine had expired, would mitigate such hardships to a considerable degree. In the case of diseases whose cause is known, such as cholera or diphtheria, a bacteriological examination with negative result, could be followed by immediate discharge of the suspect after disinfection of the clothing, etc. In other diseases the suspect having been removed much earlier from contact with the disease, the "date of last exposure" would be much earlier, with a lessened liability of contracting the disease. The isolation of the sick from the well, in the workingman's cottage as well as in some more pretentious quarters, is not attempted for lack of room, nor can it be enforced where a tired, overworked mother is sole nurse and housekeeper. Here, again, the "House of Detention" would show its value. The members of the family remaining well could, after the expiration of the quarantine-period, be sent to relatives or boarded at the expense of the community until they could go home in safety.

In suggesting the establishment of a "House of Detention" (House of Observation, or Observation-hospital might be a less repellant title), I am well aware of the many objections, financial as well as social, which may be urged against it. While everybody would agree that it would be a very desirable thing, everyone would want it located at the other end of the town, and fight its location in his own neighborhood to the full extent of the law. Quarantine implies, as a necessary sequel, disinfection. A thorough and efficient disinfection, as we now understand the term, requires a large and expensive plant and trained help. The ordinary fumigation with sulphur is nothing but a fumigation, a smoking.

If you recall the scene you all have probably witnessed, where the entire surplus-stock of clothing had hung uncovered in the patient's room, and the exulting remark of the mother, that she had removed the best pieces before fumigation for fear the vapors would spoil them; and also recall the impossibility of penetrating mattresses and feather beds by vaporous antiseptics under atmospheric pressure, you can hardly be surprised that contagious diseases break out again and again. In order properly and thoroughly to disinfect an infected house, the furniture, and in fact all its contents, should be covered by, or packed in, carbolized sheets, and brought in closed wagons to a place where they can be subjected to the action of live steam under pressure. Meanwhile, the house could be fumigated with sulphur after wetting down the walls, then well aired and scrubbed, and the walls limewashed or repapered. Such a house could be again occupied with confidence and safety.

The question will be asked: Where will the patients and attendants go during this prolonged operation? I answer, to a department of this same observation-hospital, where they can undergo personal disinfection. In fact, such a house of refuge was proposed, if not actually built, in the city of Berlin some years ago. The city of Milwaukee has made a good beginning by the construction of a disinfecting van, in which infected articles can be subjected to live steam; but to my mind, anything less than the measures outlined above can hardly be called a thorough disinfection.

For the transportation of suspects and convalescents to and from the observation-hospital, the authorities should provide suitable vehicles capable of perfect disinfection. Stringent orders should be issued to teachers to insure the observance of rules of the circular referred to. This rule provides that school- and library-books shall not be taken into infected houses, or, if therein, shall be destroyed. No child should be allowed to enter school from an infected (disinfected) house unless provided with new books. Similar instructions should be issued, absolutely prohibiting teachers from sending children to a residence to ascertain the reason for the scholar's absence. This is done, I know, quite frequently in the city of Milwaukee, and its dangers need hardly be pointed out.

Cases of typhoid fever should receive a stricter surveillance from the health authorities than they have heretofore received. It is absolutely impossible to estimate the number of undisinfected typhoid stools thrown out by careless or overworked nurses, to find their way eventually into the water-supply. The authorities could greatly aid the family physician by frequent inspections and by supplying disinfectants at public expense if needed. In cases of cholera there is hardly

such danger that the attendant's advice will be neglected, the disease running a much shorter course, and the people fearing it much more.

The examination of travelers, their detention and isolation, if found open to suspicion, as well as the establishment of sanitary cordons and camps of observation and refuge, are so complicated by the operation of our triple system of laws, local, State, and national, that they are not within the purview of this paper.

DISINFECTION OF ROOMS AFTER CONTAGIOUS DISEASES.[1]

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SINCE the acceptance of the germ-theory of disease, the word "disinfection" has taken on a somewhat different meaning. Before, it included the temporary removal of infectious matter and the suppression of noxious odors; now, a disinfectant must not only mask bad odors, but must kill the germs that give rise to them, and may well mean a germicide.

To disinfect a room after the existence of contagious disease therein means practically to destroy all of the pathogenic germs and their products that may exist in the room.

The following are the diseases termed "dangerous and contagious" in this State, requiring disinfection after their appearance, *viz.*, Asiatic cholera, smallpox, diphtheria (membranous croup), scarlet fever, typhoid fever, and tuberculosis. In other States, yellow fever and typhus fever, which do not exist in Wisconsin, are added to this list, and in some foreign countries bubonic plague. In some cities in this country, measles and cerebro-spinal meningitis are included among those diseases which require disinfection, and the English authorities so regard erysipelas, and relapsing, continued, and puerperal fevers.

The disease-germs supposed to cause cholera, diphtheria, typhoid fever, and tuberculosis have been isolated. However, disinfection seems to be as efficacious in those diseases where the germ has not been isolated, namely, smallpox and scarlet fever, as in those where it has.

To disinfect a room in which any of the aforesaid diseases has existed, as soon as the patient has been removed by recovery or death, no time should be lost in carrying out the process of disinfection decided upon. In the first place, all inexpensive articles of clothing, fabrics, etc., that are found in the room, should be burned. In the second place, all washable fabrics should be plunged into boiling water for at least a quarter of an hour. In the third place, all beds, mattresses, bolsters, pillows, carpets, rugs, stuffing of easy chairs, etc., should be packed up, if possible, in rubber receptacles or bags, and removed to a disinfectant station, where a thorough system of disinfection by steam can be conducted. These stations should exist in certain districts throughout the country, and in every city and large village.[1] It is utterly impossible to disinfect the aforesaid material satisfactorily by any other process known at the present time, than by submitting it to hot steam for from ten to fifteen minutes, which should come in contact with every portion of the article to be disinfected. Mattresses, pillows, bolsters, etc., should be opened before being subjected to the process. Fourth, the floor in the room should be washed with a 1–1000 corrosive-sublimate solution, care being taken to saturate the interspaces between boards, and the walls should be sprayed in like manner by a garden-syringe or similar apparatus. All crevices about the window-frames and sashes and doors should be thoroughly washed with this solution; also the furniture in the room, after the upholstering has been removed, or that which is not provided with upholstering. The ceiling should be limewashed, and special attention be paid to cornices and all ornamental work, that no part escape a thorough application. The papered walls should be bared, the paper being removed and burned, after which the walls should be thoroughly whitewashed before being repapered. All picture-frames and other articles having gilt frames, also fenders, fire-irons, and metal-work generally, which cannot be washed by corrosive sublimate, should be covered by a five-per-cent. carbolized vaselin and thoroughly wiped dry, or, in many instances, they may need only to be well polished. Of course, this does not apply to dishes, etc., of all descriptions, which may be boiled. The room should then be left with the windows open for a day or two, after which it is well to whitewash the ceiling and walls again and scrub the floors with soap and soda, which will convert any remaining sublimate into a non-volatile compound. A fresh coat of paint would be of further security.

[1] Read before the Wisconsin State Medical Society.

[1] It is unnecessary for me to go into the details of a disinfection-station, as information relative to this matter is in the possession of all who have given any attention to the subject, and it is now a recognized fact that such stations and apparatus can be put into operation at a comparatively low cost in any city or village, and their method of operation is so simple that any one with ordinary intelligence can soon learn to operate them.

It is to be borne in mind that pure air, and plenty of it, and sunlight are two of the most valuable germicides we have at the present time. They are almost always available, and should be utilized in every way and as long as possible in the process of disinfection.

I have no confidence in the use of sulphur[1] burned in rooms as a disinfectant for general use, inasmuch as it is impossible to carry out the necessary details in order to have it effectual. No doubt it is efficacious in instances where three pounds of sulphur can be burned in a moist atmosphere containing a space of 1000 cubic feet; but the room must be absolutely sealed from the invasion of air, which is a very difficult thing to obtain, as a general rule, and is, in a majority of instances, impracticable. We know that the bacilli of anthrax are exceedingly difficult to destroy, but Koch found that in an atmosphere containing one per cent. of sulphurous acid the bacilli died within one half-hour, but the spores resisted in an atmosphere containing six per cent. for days, although when spread on wet filter-paper, they were killed in an atmosphere containing five per cent. in twenty-four hours. In some instances, where no other means are obtainable, sulphur-fumes used as stated may be advisable, but are not to be recommended.

We know that the bacilli of diphtheria, typhoid fever, and tuberculosis are comparatively easily destroyed where they can be fully exposed. A great deal depends upon the care of the patient and room. By removing from the latter needless furniture, carefully destroying all effete matters thrown off by the former, and thus preventing the dissemination of these germs in the atmosphere surrounding the patient, disinfection, after the patient has been removed from the room, is rendered easy. But it must not be considered that the atmosphere is the dangerous element so much as articles of furniture, floors, ceilings, and walls of rooms. Professor Willoughby of London correctly states that "Aerial disinfection is a work of medieval superstition, a delusion, and a snare, satisfying ignorance and diverting the attention from really efficient methods of disinfection."

In typhoid fever we have some problems to contend with, not yet fully solved. It has been supposed that the entire danger of this disease was contained in the discharges from the alimentary canal, but recent observations have led us to suspect that the disease may be taken from the urine, the perspiration, and the respiration of the patient. This being the case, it is advisable not only to disinfect the discharges from the alimentary canal, which can best be done by having them deposited in a five-per-cent. solution of carbolic acid or in the milk of lime, but also that the bedding, floor, and perhaps wall and ceiling, and the furniture of the room should be disinfected, as in other germ-diseases. This is a matter, however, not yet fully developed.

Finally, it is well to remember that the most effective agents in disinfection are the cheapest, namely, corrosive sublimate, lime-wash, boiling water or steam, together with sunlight and pure air. It is very probable that experimental chemists may soon find other chemical agents of a germ-destroying character which will be more efficacious than any we now possess.

[1] If the reader will take the pains to refer to pages 277 and 495 of the present volume of the MEDICAL NEWS, he will be convinced by the report of Mr. Henry Kenwood's experiments that the fumes of burning sulphur are much more efficient and reliable than the author of this article seems willing to admit.—ED.

ROUTINE CLEANLINESS, ISOLATION, AND WATCHFULNESS OF SCHOOLS AND CHILDREN.[1]

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DURING the past year my attention was called to the sanitary conditions existing in one of our public ward-schools. Upon inspection, I found such a palpable neglect of both routine cleanliness and building arrangements as would appear hardly possible at the present time, when the knowledge of both as infecting agents is so widespread. Briefly summarized, these abnormal conditions were as follows:

Under indications of a lack of routine cleanliness there were: In the basement, a wet floor under the urinals, the odor of which could be got upon entering the building; filthy seats to closets; dust and cobwebs sticking to the walls and ceilings. There were on the three stories above, dust-laden floors, more especially noted in the corners of stairways and schoolrooms; dirt upon walls, ceilings, desk-stands, desks, foot-boards, window-casings, sills and windows, with cobwebs here and there attached to the ceilings; filthy, greasy-looking slates; a single washstand on each floor, the iron basins of which were rusty, while the wooden casings were greasily dirt-stained, with no soap visible. Over each water-spigot was a single, filthy, rust-stained, tinned drinking-cup, hanging upon a rusty nail.

Under building arrangements I found: In the basement, closets and urinals exposed to dim daylight, and no sunlight; closed plumbing; wooden

[1] Read at the meeting of the Wisconsin State Medical Society.

floors; low ceilings; no arrangements for ventilation. On the upper flats the floors were of soft pine, much worn, and the joints were separated. Walls and ceilings were cracked and rough. There were no arrangements for ventilation save by opening windows.

With the exception of a small addition, the building was very old. From six hundred to eight hundred children and teachers were housed from 8.30 A.M. to 12 M., and from 1.30 P.M. to 4 P.M. each day. When consideration is given to the germ-carrying capacity of the clothing, shoes, hats, hands, hair, and saliva of the children attending this school, in many of whose homes diseases prevail, it is obvious that, with these unhygienic surroundings, whenever there is an infectious disease in this city, this school represents a large number of cases.

Taking the investigations of Schiller, Cornelly, and Foggie, Brown-Séquard and D'Arsonval, Mitchell, Billings, Bergey, and many others as guides, everything indicates that far more insidious unhygienic conditions exist in our schools than in hospitals. This is especially apparent in general class-rooms wherein, irrespective of location of homes and their internal cleanliness, all children are aggregated according to advancement in learning. The result is that they, and all persons with whom they may come in contact, have only the individual resistance of the cell as a protection. This resistance, or range of bactericidal force of the cell, may be so abnormally limited by the struggle between hereditary biological phenomena and forced acquirements that it cannot protect itself against the microörganisms present.

As we know, hospitals are now systematized so that buildings and wards are specialized. Every detail of clothing, bedding, etc., is rigidly guarded. From the researches of Leewenhoek, Hunter, Jenner, Huxley, Tyndall, Pasteur, Lister, Koch, and Semmelweis, we have learned methods for preventing the spread of infectious diseases. We apply them in our most detailed practices. The preceding pages indicate the necessity of their minute application in schools. Then why do we not apply them there?

With the desire of advocating reforms in schools, I have made inquiries at the various orphan asylums and other institutions in this city, and I have consulted such literature as is at hand, to ascertain the character and frequency of contagious diseases. The uniform information is that such diseases are less frequent and in a diminished proportion to the numbers of children housed and confined during certain hours, as in schools. These facts point strongly to three systematic methods of living, when consideration is given to hereditary predispositions, such as are presented in children living in orphan asylums. They are: Stringent routine cleanliness, isolation, and espionage or watchfulness.

As another reason for these reforms in schools, I need only quote the precautions of physician, surgeon, and nurse in the operating and obstetrical rooms. It is only necessary to mention the investigations of Fraenkel, Cornet, Manfredi, and many others in order to justify extreme precautionary measures. A further fact which should demand these reforms is that in most cities in this country the position of health commissioner is a political office, and as a consequence appointments are made only because of a "pull," and irrespective of fitness. If, perchance, the health officer is fitted for the work by virtue of a knowl edge of minute and detailed technical hygienic requirements, then he is hampered in doing his duty by a lay board of aldermen, who virtually dictate his policy. Such a condition of affairs makes the proper watchfulness of contagious diseases almost an impossibility, and as a consequence it is not uncommon to hear of children attending school when one or more members in the family have some contagious disease. This is in part also owing to a certain carelessness in the physician in not reporting such cases.

From these facts, the indications are that the biological resistance of the cell is being primarily limited by the action of the faulty ventilation, combined with the discipline necessary to impress the acquirements of our present civilization. The result is, that the lack of routine cleanliness and watchfulness of the homes and schoolhouses causes the children to carry into and accumulate in both innumerable pathogenic germs, which find a ready medium for further evolution in the weakened cell.

The problems to be solved, then, arrange themselves under two headings:

(1) To devise systems of education which do not enervate the child by limiting accommodation and bactericidal force, and (2) to use compensatory measures against the accumulation of pathogenic germs in the houses, the schools, and upon the clothing, shoes, hands, etc., of the children. Time alone will solve the first. From preceding evidence, the second may be accomplished by (1) stringent rules governing the architecture of school-buildings and their routine cleanliness; routine use of soap and water for exposed parts of the body—face and hands, and (2) by the use

in the schoolroom and during school-hours of outer garments, which will cover the clothing worn, and, as a consequence, isolate pupil from pupil, and persons in general from the pathogenic germs clinging to ordinary clothing. The stuff for such garments for both foot- and body-wear could be made of very inexpensive material. Every school should be compelled to place in some part of every school-building a sterilizer, so that these outer garments (devised and made as best suits the condition to be met) can be surgically cleaned each day and made a part of the routine cleanliness, as is the sweeping of floors, etc. These garments can be tagged, lettered, or numbered, and placed in lockers for daily use. As suggested by Cohn and adopted in most European countries, "a qualified hygienist, having a special diploma stating his fitness," should be made an advisor of the school-board and have supervision of the hygiene of schools. The health-commissionership should be a non-partisan appointment—fitness alone determining a choice.

In closing, I would call the attention of the members of this society to the use in schools of the pernicious feather duster which simply displaces dust, and I would suggest in substitution the use of damp gauze, which catches all dust, and, on account of its cheapness, could be burned, or, if desired for further use, could be sterilized.

AN ADDRESS.

THE HOSPITAL AND DISPENSARY ABUSE.[1]

BY LANDON CARTER GRAY, M.D.,
OF NEW YORK;
PROFESSOR OF MENTAL AND NERVOUS DISEASES IN THE NEW YORK POLYCLINIC.

WHEN I look over the long list of presidents of this Society, and perceive such names as Hosack, Cock, the two Rogers, Delafield, Bulkley, Taylor, Finnell, Hubbard, Peasley, the two Elliotts, Jacobi, Sands, Peters, Bumstead, Purdy, Sturgis, Webster, Vanderpoel, Lewis, Grandin, and Fisher, I cannot but feel that I have received a great honor in being chosen as a successor to these gentlemen.

In the great changes that have taken place in this city between 1806, when this body first came into existence and the population was about 90,000, and the present year, during which it is estimated that the dwellers within our corporate limits number 1,851,060, medical societies have multiplied, not only for scientific, but also for social, topographical, and collegiate reasons, and the County Society no longer occupies the same relative position that it did for years after its foundation; and this has too often caused those not familiar with its work to overlook the fact that it is possessed of great powers, which would make medical men instinctively turn to it as an arm of strength in time of trouble or epidemic. It has at the present time a membership of 1484. It is the official or representative society of the medical profession in the county of New York; while, through its delegates, who can become members of the State Society by the simple process of attending for two successive years, it has an intimate affiliation with the larger organization, and by this intermediary, with every county medical society in the State. It has three standing committees of great importance. By means of the one upon Ethics it regulates the professional conduct of its members with an authority that very few men would care to dispute. By its committee on Hygiene it keeps watch over the public health, and the committee upon Prize Essays gives an opportunity for generous recognition to many a struggling man of talent. It has a large and active Comitia Minora, acting as councilors to the President. It has a salaried legal counsel standing ready to protect the interests of the profession against imposture and injudicious legislation. It is in the metropolis, and its incentives, its opportunity, and its dignity are that of the greatest city of the country, so that what it does (provided it be worthy of notice) is known of all physicians throughout the broad American nation. I do not need to remind you how effectively these powers have been used in the past and are being employed in the present, for the historian of the battles that have been fought and won here for a higher standard in medicine, would need more than an evening to chronicle them.

It would seem, from what information is at my disposal that the members of this Society are not aware of the fact that Section 41 of the Consolidation Act, Chapter 410, Laws of 1892, disqualifies a physician from being the president of the municipal Board of Health in these words:

"The head of the health department shall be called the board of health. Said board shall consist of the president of the board of police, the health officer of the port, and two officers, one of whom shall have been a practising physician for not less than five years preceding his appointment. The commissioner of health, who is not a physician, shall be the president of the board, and shall be so designated in his appointment. The commissioners of health shall, unless sooner removed, respectively hold their offices for six years, and until their successors shall be respectively appointed and have qualified."

I am told that this clause was copied from the Charter of 1873, but I am at a loss to understand the reason for the disqualification of physicians for an office peculiarly requiring medical skill and experience.

But I ask your especial attention to-night to the abuse of medical charity—a subject which has been so often discussed and rediscussed that our souls have become weary, and I should hesitate to allude to it but for the seeming opportunity now offered to us in the power recently given to the State Board of Charities to revoke the charter of any institution proven to dispense medical charity improperly. This clause was introduced into the new Consti-

[1] Inaugural address of the President-elect of the New York County Medical Society, delivered at the annual meeting, November 23, 1896.

tution by Mr. Tunis G. Bergen, president of the State Board of Charities, to whom the profession is under a lasting debt of gratitude; and I never fully appreciated what this gentleman has attempted to do for us until I obtained accurate figures upon the subject, through the kindness of our distinguished colleague, Dr. Stephen Smith, who is a most energetic member of the same board. From these statistics it appears that the county of New York has at the present time twenty-six hospitals and 114 dispensaries. In the former, during 1895, 75,368 patients have been treated free, and in the latter 661,803, making a total of 737,171. The population of this city is only 1,851,060, so that the proportion of such free patients to the whole community is thirty-nine per cent. There have been 92,529 free visits of patients to hospitals in 1895, and 1,387,170 free visits of patients to dispensaries. Out of 1,104,381 prescriptions that have been dispensed there is no means of knowing exactly how many have been without charge, because fifty-two of the dispensaries have made no report to the State Board of Charities, while of the sixty-two that have reported, sixteen make no charge for their medicine, and forty-six make nominal charges of from five to fifty cents, or nothing when the patients are unable to pay. Of these 114 dispensaries, sixty take certain precautions to weed out the unworthy, such as making inquiries, questioning the patients, judging by their appearance, and by the statements of physicians sending them, while the remaining fifty-four either make no inquiries or have made no report. In attendance upon these 114 dispensaries are 949 medical men, which is twenty-seven per cent. of all the physicians in the city, who number 3430. Efforts were made to ascertain how many of these patients were non-residents, but the answers were usually very indefinite; one institution stating "Very few, if any," others "from one to ten per cent.," while ten had treated 2124. The foregoing summary does not include institutions under the charge of the local Commissioners of Charity, one of whom, Mr. John P. Faure, has kindly informed me that there are eight city hospitals, containing 7089 patients, and that the out-patient branch has treated 49,620 patients during the year ending June 30, 1895. Although it is probable that these cases are really worthy of charity, yet, in strict logic, the figures should be added to those given above, which would swell the total of patients treated in this city in one year to 793,880.

These statistics confirm the rumors that have been rife among us for many years, such as that the president of one of the largest municipal railroad corporations was discovered to be a regular attendant at one of the dispensaries; that patients come occasionally to the clinics in carriages; that practices can almost always be obtained from certain clinics in a large dispensary, such as those of general medicine or gynecology; that the neighborhood of large dispensaries is bare of physicians' residences; that patients come to town from distant cities with a physician, occasionally with a relative, put up at a hotel, seek a clinic for medical advice, and when told in one dispensary that they are not fit objects of charity, speed away in hot indignation to another; that patients are frequently sent to a clinic with a letter from the attending physician containing a modest request for diagnosis, prognosis, and treatment, inquiry eliciting that their intention is to go back to this gentleman's office and pay him for treatment; that patients in the country towns for miles around New York are quite appreciative of the excellencies of our city dispensaries for different diseases; and that patients constantly go to dispensaries in order to ascertain the best physician for their particular disease. The reason for the enormous increase in our charity work is plain to any one who has witnessed the development of our hospitals and dispensaries of late years. The public must be appealed to for money; the larger the number of patients, the more need shown for money; and no effective general regulations being strongly enforced, the growth of the abuse has been so stupendous that all methods of restriction have proved utterly ineffectual. The intentions have been altruistic in the extreme, on the part of both lay and medical members of hospital boards; indeed, it is questionable whether any one has known the full extent of the evil.

It will not be denied for one moment that a certain, nay, a liberal amount of charity work is a necessity to the medical profession, distinguishing it in this respect from all others. The lawyer, for instance, the engineer, the minister, the architect, the *littérateur*, the journalist, can each perfect himself in the art of his calling without proffering his services gratuitously. But the physician must study types of disease only to be adequately observed in sufficiently large numbers either in a very large practice or in hospitals and dispensaries—indeed, it may be doubted whether the fullest practice, in the harvest-time of a successful physician's life, can offer him such opportunities for familiarizing himself with maladies as do our hospitals and dispensaries. It must be remembered, too, that relatively few men obtain great practices, and that they can only hold them by means of the knowledge of ailments acquired in the previous years of attendance upon hospitals and dispensaries. So that these institutions are the training-schools of our profession, inestimable to the men whom they bring into contact with each other in their varyingly eager and mutually stimulating pursuit of the same ideal, aided by the assistants, the instruments, the nurses, the housing, and the organization of such corporations. Then, the thousands of students who come to this city must be taught, and this cannot be done without the clinical material of hospitals and dispensaries. Any unwise restraint would therefore imperil the existence of New York as the medical center of the country, and no man in his senses would dream of such restriction. But such manifestly indiscriminate charity as exists does not seem necessary to these purposes. It is trite to say that no suffering person should fail to receive the medical aid that may be needed in the emergencies of life, but in this city there really does not seem to be much likelihood of such a grievance, when 949 physicians, out of a total of 3430, treated 737,171 patients in one year, made 1,479,609 free visits, and wrote 1,104,381 prescriptions, besides paying due attention to the other duties incidental to attendance upon twenty-six hospitals and 114 dispensaries.

In our medical profession there are gentlemen who

have been so favored by fortune that it has not been their lot to come in contact with the seamy side of practice; there are others to whom fame has brought its attendant success; there are still others whose special branches obviate the necessity of general practice. To these medical men this statement of facts may seem exaggerated, but the great body of practitioners, and those who are broad-minded enough to realize this grave violation of the first principles of a wholesome political economy, will feel, as I do, that prompt and just measures should be taken to regulate our medical charities. For my part, I have a most thorough appreciation of the needs of those upon whom we should bestow charity, but my sympathy is broad enough to embrace the medical as well as the lay poor. I therefore recommend to this Society that a special committee be appointed to obtain such facts about this subject as may be necessary to just conclusions, and that the results of this investigation be submitted to the entire Society for such action as it may think proper. I would suggest that this committee consist of eleven members, namely: the chairman, five members to represent respectively the five medical schools, and the other five on behalf of the profession in general.

CLINICAL MEMORANDA.

A CASE OF EXSECTION OF THE RECTUM BY THE VAGINAL ROUTE.

By A. T. BRISTOW, M.D.,
of Brooklyn;
Surgeon to the Long Island Hospital; St. John's Hospital.

The operation of exsection of the rectum, whether in male or female, ought to be restricted to those cases in which it is possible to get well above the growth which must not have invaded neighboring tissues. The old route by the perineum neither gave the requisite room for operation on any but growths quite low down, nor did it give the same opportunity for dealing with hemorrhage that later operations have done. The more modern methods of Kraske, Rydgaier, Bardenheur, *et al.*, secure the room which a high exsection requires by resecting the sacrum below the third sacral foramen, either transversely or laterally. In this manner it is possible to resect the entire rectum, and at the same time control the hemorrhage, always profuse, in a much more satisfactory way than after the old operation. The mortality of the operation is high, however, averaging in the hands of the best operators twenty-three per cent. In the hands of surgeons in general the mortality will be higher still. No doubt so severe a proceeding as resection of the sacrum must add to the gravity of the procedure, and yet in the male this can never be avoided, as in no other way can the necessary room be secured which a complete operation requires. My attention was called to a method of operating in the female by a reference in an article of Gerster's, appearing in the October number of the *Annals of Surgery*, to two cases of exsection of the rectum *per vaginam*. Two operators in Europe, Rehn of Frankfort, and Campenon of France, had removed the rectum in the female by this method. The method seemed to me feasible and to possess certain advantages over the sacral route, so that I determined to try it if a suitable case presented itself. The operation which I am about to describe is the third on record up to date, and so far as I know has not been done by any other operator in this country. Since writing the above Byford has reported a case in the *Annals of Surgery* for November, '96.

Case.—October 31, 1895, there entered my service in St. John's Hospital, J. E. W., spinster, aged fifty-seven. Two years ago she began to have pain in the abdomen, localized afterward in the rectum, especially severe on defecation. She passes much pus and blood, and fecal matter in tape-like strips. Examination discloses a tumor as high as the finger can reach. The vagina seems clear of growth. A diagnosis of rectal carcinoma was made, and one week later inguinal colotomy was done after Maydl's method. This gave the patient much comfort, and she began to gain in weight and was relieved of pain. Her condition continuing to improve, it was determined to attempt extirpation of the growth by the vaginal route. This was done on January 11, 1896. A median incision was made in the rectovaginal septum, from cervix to perineum, through which the bowel was enucleated without much trouble after the division of the levator-ani fibers, and the clearance of the bowel at the anal outlet. The hemorrhoidal arteries were recognized and tied in the course of the dissection, and the bleeding was easily controlled, that which gave the most, and, indeed, the only trouble, coming from the vaginal cut. After severing the levator-fibers the bowel was enucleated with the finger. Although this was a virgin vagina the rectum was easily accessible, and six inches of bowel were removed, the end remaining being stitched into the wound after being brought down as low as possible. The vaginal wound was sutured, as it was believed that the artificial anus in the groin would be less disagreeable to the patient, safer against recurrence as removing all sources of irritation from the original seat of the disease, and more easily taken care of. The patient made a good recovery from the operation. A few months afterward, however, the disease recurred, and the pelvis is now hopelessly involved. The method gives easy access to six inches of rectum without the shock of a sacral resection. Further than six inches it is not possible to go, judging from my experience in this case.

DELAYED UNION OF FRACTURED TIBIA DUE TO PREGNANCY.

By J. HERBERT DAREY, A.M., M.D.,
of Northwood, Iowa;
Fellow of the American Academy of Medicine.

On May 20th, 1891, I was called to see Mrs. D., who had been watching her husband fishing in the moonlight, below a mill-dam. While stepping on the slimy logs of the apron of the dam, she slipped, and fractured her right tibia about the middle of the shaft. The patient was the same one, by the way, whom I reported in the *Montreal Medical Journal*, vol. xviii, p. 732, as having supernumerary breasts. I put the leg in a fracture-box, and kept it there for a week or ten days, till the swelling

had all subsided. Then I put it up in plaster of Paris. I took off the plaster-dressing about six weeks after the injury, and the limb seemed perfectly straight, and the fracture firmly united. I could not get any motion in it at any rate. I advised her to try and go about the house carefully with the aid of a crutch, and to try to use the leg as much as she could bear. In about a week she sent for me, saying that the leg was not firm and solid as it ought to be. On examination I found that there was defective union, and got considerable motion at the seat of fracture, by firm pressure. I forcibly rubbed the broken ends together, and put the leg up in plaster of Paris a second time, feeling considerably chagrined at the non-union, which I could not account for in any way. I left the plaster-dressing on for six weeks more before I took it off. The leg was straight and in good position, but still there was non-union. I was completely puzzled by this state of things in a strong, healthy countrywoman, about thirty-five years of age, who had never had any serious sickness in her life, and was apparently in the best of health at the time. I soon heard from some of the neighbors that Mrs. D. was pregnant, which seemed to me to furnish a possible explanation of the non-union. On investigation, she admitted that she was three months pregnant at the time of the accident, and was by this time about six months advanced. She was a stout, fat, heavily built woman, with a pendulous abdomen, and I never had noticed any particular change in her shape. I now told her that there was no use doing anything further till the child was born. There was some motion, but the fibula acted as a good splint, so I told her to be very careful with her leg, and allowed her to go about the house with her knee on a chair. In this way she managed to do all her housework for a family of six or seven children till she was confined at full term. After her confinement, without any further treatment, the tibia united firmly, and now that leg is just as sound as the other one. The only explanation of this that occurs to me is that the osteogenetic elements of her blood went to form the fetal skeleton, instead of healing the fracture of the tibia. That this explanation is correct, is proved by the subsequent history of the case, and the rapid and permanent union of the fracture. I had never seen anything bearing on this subject in the text-books, nor have I ever read any similar case in the journals, and as it is a rare case, I desire to have it recorded.

MEDICAL PROGRESS.

Pseudo-bulbar Palsy of Cerebral Origin in Children.—As the result of a clinical study relating to involvement of the cerebral nerves in a series of cases of cerebral palsy in children, KOENIG (*Zeitschrift für klinische Medicin*, Bd. xxx, H. 3, 4, p. 285) has found that among the clinically atypical forms of cerebral diplegia there occur exceptional cases characterized by a prominence of the symptoms of bulbar paralysis, which may be designated the "pseudo-bulbar form of cerebral paralysis in children," or the "infantile form of pseudo-bulbar paralysis." In addition to this classic variety there occur masked forms characterized by the absence, or but slight manifestation, of difficulty in swallowing. Especially in such cases is great care required in the interpretation of the speech-disturbance, as a slight degree of nasal speech may be due to the existence, past or present, of adenoid growths in the naso-pharynx, or, more commonly, to a general relaxation of the entire muscular apparatus, in which the veil of the palate participates. There is, however, a group of cases in which speech, apart from its nasal character, is so distinctive as to be recognized as only of central origin.

Myelitis in a Choreic Child Following Treatment With Arsenic.—At a recent meeting of the Société Médicale des Hôpitaux, COMBY (*Presse Medicale*, 1896, No. 52, cclx) reported the case of a girl, seven years old, without rheumatic or cardiopathic antecedents, who came under observation about a week after the onset of a severe attack of chorea. Treatment was begun with the administration daily of the equivalent of $\frac{1}{7}$ grain of arsenious acid, the dose being increased daily $\frac{1}{14}$ grain, until it equaled $\frac{1}{2}$ a grain, and then being reduced in the same manner to $\frac{1}{7}$ grain. In this way $3\frac{1}{2}$ grains of arsenious acid were given in the course of eleven days. After the fifth day the choreic movements ceased, and did not return. On the sixth day vomiting occurred, the tongue was coated and slight febrile movement set in. After ten or twelve days the gastric disturbance disappeared, and the patient left the hospital. In five weeks, however, she returned, having been paraplegic for a week. The general condition otherwise was quite good; from having been pale and emaciated the child had become ruddy and full. The paralysis of the lower extremities was complete and the reflexes were abolished, but sensibility was unaffected, and there was an absence of trophic disturbance. In spite of treatment with strychnia, faradization, and sulphurous baths, the paralysis ascended to the trunk and the upper extremities, although in less degree than in the lower. Subsequently there was for a period of ten days incontinence of urine and feces. Finally improvement set in, and progressed in the inverse order of the invasion; and in the course of rather more than a month had advanced to complete recovery. The symptoms in this case are attributed to a myelitis of arsenical origin.

Cholecysto-bronchial Fistula, with Expulsion of a Gall-stone.—VISSERING (*Münchener Medicinische Wochenschrift*, 1896, No. 24, p. 567) has reported the case of a fairly well-nourished man, sixty-three years old, who had complained for two days of a sense of pressure in the epigastrium, loss of appetite and constipation. On the following day the patient was seized with a severe chill, attended with intense pain in the abdomen, particularly in the right iliac region, and obstinate vomiting. Perspiration was free, while the skin felt cold and the pulse was scarcely appreciable. The abdomen was moderately distended. A diagnosis of perityphlitis was made, poultices were applied locally, and opium was administered internally. The active symptoms ameliorated, but the liver increased in size, and became the seat of pain. Subsequently jaundice developed, and the stools were clay-colored, while the urine contained biliary coloring-matters.

In the further progress of the case the gall-bladder also became evidently distended, while the general condition of the patient grew gradually worse. The temperature fluctuated slightly above the normal, the pulse varied in frequency and size, and the respiration was accelerated. In the course of a month chills recurred, with elevation of temperature and dyspnea, and the signs of right-sided pleurisy. At the same time diminution in the size of the liver and of the gall-bladder appeared to take place, with lessening of the pain, The expectoration had by this time become copious and offensive; it was at first purulent, but soon presented an ocher-yellow, and the patient complained that its taste was as bitter as gall. This peculiarity of the expectorated matters was repeated from time to time, always with some diminution of the jaundice. Finally the diagnosis of a fistulous communication between the gall-bladder and the bronchial apparatus was confirmed by the expectoration of a gall-stone as large as a pea. The patient declined operative interference.

A Report of 105 Deliveries of Women With Contracted Pelves.—As a result of the study of the labor in 105 cases of contracted pelvis among a total of 4289 cases of all kinds under observation at the German Obstetric Clinic of the University of Prague, between the years 1891 and 1895, KNAPP (*Archiv für Gynäkologie*, B. 51, H. 3, p. 483) has reached the following conclusions: In proportion to the reports of other clinics the number of contracted pelves has been small. Flat and generally contracted pelves, without demonstrable evidences of rachitis, appear to preponderate over deformities due to rachitis; although it is not to be denied that at least one-half of all pelvic deformities can be attributed to rachitis, as this affection is by no means uncommon among Bohemian women. Among the whole number of cases osteomalacia was observed in but five; all happened to occur in one year (1895); but there was no relation between this fact and place of residence. Bohemian women, in general robust, usually presented with contracted pelves slender skeletons—especially was this so of primiparæ. The uterine contractions were, with individual exceptions, commensurate. Premature rupture of the amnion protracted the labor in most cases, and occurred more commonly in connection with contracted pelves than with normal. Expectant treatment was generally sufficient in most cases, both for mother and child. In regard to morbidity operative interference yielded for the mothers more favorable results than expectancy, and the reverse for the children. The complete results among the 105 cases were exceedingly favorable among the mothers; a mortality of 0.95 per cent.; but not so among the children—31.43 per cent. These results are attributable to the rule observed to place the greater importance upon the life of the mother.

Skiagraphy Applied to the Study of Akromegaly.—MARIE has described two types of akromegaly—the ordinary massive form and the giant form, which develop in accordance with the period of life at which the disease makes its appearance. Thus, if the disorder begins during the period of active growth, when the bodies of the bones, as well as the epiphyses, are capable of enlargement, the giant form usually results; whereas, if the disease begins after bone-growth has been completed, the massive form is likely to result. MARINESCO (*Compt. rend. heb. des Sciences de la Soc. de Biologie*, 1896, No. 21, p. 615) secured skiagraphs in three cases of akromegaly of the common massive type, and in one of giant variety. The first of the cases was in a man fifty-five years old, in whom the disease had been present for eleven years. Metacarpus and phalanges were uniformly enlarged, the increase representing merely an exaggeration of the normal. In another patient, thirty-three years old, presenting the aspect of a giant, the disease had begun about eight years before. The increase in size in this instance was rather in the direction of length, and the soft parts did not take part in the enlargement to the same degree as in the other type of the disease. Another patient, thirty-three years old, in whom the disease had existed for not less than seven years, presented, contrary to the accepted explanation, the massive type of the disease. In him the extremities of the bones were especially involved, and the circumference rather than the length. In the fourth case, occurring in a woman fifty-four years old, and of the massive type, the disease had been present for nine years, and was not well developed. The nose was especially enlarged. The bony lesions corresponded with those found in the other two cases of similar kind. Skiagraphs from a case of erythromegalia failed to disclose any skeletal alterations, an observation confirmatory of the view that this affection has no relation with akromegaly. In all of the cases of akromegaly the lateral aspect of the last phalanges appeared to be excavated, probably as a result of the very considerable enlargement of the epiphyses of these bones.

THERAPEUTIC NOTES.

Nitroglycerin in Angina Pectoris.—SCHOTT (*Wiener klin. Rundschau*, September 6, 1896) advocates the following prescription as the most efficacious form of administering nitroglycerin in angina pectoris:

℞ Nitroglycerin . . . . . gr. iij
Tinct. capici . . . . . ʒ ss
Spir. rectificat } aa . . . ʒ iij
Aq. menth. pip. }
Sig. 2–10 drops.

In one minute the action of the drug is manifest, and in scarcely three minutes the pain is entirely done away with. As the patient grows accustomed to the dose, it must be increased, and if this be done carefully there is no great danger to be anticipated.

To Prevent Baldness.—The following prescription is in use in the Dermatological Clinic in Vienna to prevent the hair from falling out:

℞ Tr. cinchona rubræ . . . . ℥ i
" cantharidis . . . . ʒ ss
Ac. carbolici . . . . . ʒ ss
Strych. sulph. . . . . gr. ij
Eau de Cologne } aa . . q. s. *ad.* ℥ iv
Olei cocos }

One or two applications *per diem* are required.

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SATURDAY, DECEMBER 5, 1896.

ULCERATIVE ENDOCARDITIS SUCCESSFULLY TREATED BY ANTISTREPTOCOCCIC SERUM.

THE serum-treatment of disease is being constantly extended and with steadily increasing confidence in its efficacy.

Dr. Sainsbury, at the Royal Free Hospital, London, had the case of a lad, aged thirteen years, who had both renal and cardiac disease with febrile and other symptoms confirmatory of the diagnosis of malignant endocarditis. A treatment by injection of an antistreptococcic serum, beginning with a dose of 20 c.c., and continuing at half that dose, 70 c.c. in all being administered, was adopted. The disease, in the opinion of Dr. Sainsbury, as reported in the *Lancet*, London, October 17th, responded so promptly and satisfactorily to the serum-treatment that no apology is needed for recording it. Before the injections were commenced the patient had lapsed into a condition of marked cachexia; within two or three days the improvement in the aspect and bearing of the boy was unmistakable—he was clearer-looking, brighter, and the desquamating skin cleaned rapidly. Neither local reaction at the site of the puncture, nor any general reaction was observed except on September 1st, the time of the last injection, when the sudden rise in temperature, the general appearance of illness, and the pain at the site of the injection, followed so speedily upon the treatment, that there seemed no other explanation for the symptoms than the dose of serum. The boy, however, soon rallied, and then, curiously, took a fresh start; his temperature for the first time became normal, and his advance was then so rapid and uninterrupted that there was no excuse for another injection. Thus all the injections were markedly effective, but most so this last injection, which produced definite local and general symptoms. Was this reaction an unnecessary concomitant—the result of a by-product, or was it to be regarded as of the nature of a curative reaction?

In a recent case of ulcerative endocarditis at the Victoria Park Hospital for Chest-diseases, the antistreptococcic serum failed to arrest the disease, and seemed to have no beneficial effects; in this case, however, there was, in addition to the endocarditis, grave kidney-disease with cortical destruction, which may account for the failure; the disease was, moreover, in a more advanced stage, and of more virulent type.

THE CULLINGWORTH MALPRACTICE SUIT.

A SUIT for malpractice has recently been decided in England, which involves points of great practical importance, and deserves the serious attention of every active surgeon. The questions at issue were of vital concern to the patient on the one hand, and to the surgeon on the other. Plainly stated, they may be considered as follows: Has a patient, who is in full possession of his faculties, and about to undergo a surgical operation, the right to set the limits to that operation? And is a surgeon, who has advised and undertaken a definite operation, justified in extending the procedure, even to the removal of organs, not previously mentioned, if, in the course of the operation, he deems it vastly to the best interest of his patient so to do?

The case in question may be briefly stated thus: A trained nurse, who suffered from pelvic trouble, consulted Dr. Cullingworth of London

regarding her ailment. Upon examination, he discovered a swelling in the pelvis, which he diagnosed as an inflamed cyst of the right ovary. This he made known to the patient, and, in response to her inquiries, informed her that the left ovary was probably healthy, but it was impossible to speak with certainty regarding it. If, however, upon examination after the abdominal section, it also proved to be diseased, he should use his discretion about removing it. To this complete castration she was violently opposed, and never positively consented, although the doctor insisted that, while he would respect her wishes, she should leave the matter in his hands. By finally accepting the operation, the operator inferred that she had relinquished her objections.

From the evidence, it appears that Dr. Cullingworth took great care to explain to the patient what the remote effect of the operation would be: that if only one ovary were removed it would be quite possible for her to become a mother, but if both ovaries were sacrificed sterility must eventuate. Three separate and distinct interviews were held on the subject, and although the Doctor and the patient were directly at variance in their testimony before the court, the circumstances were corroborative of the statement of the former, to wit: that he could not bind himself by any promise not to remove the second ovary if it should prove necessary. From the pathological description of the organs, there was no question of the hopeless condition of the second ovary. The operator showed his consideration for the patient's wishes by endeavoring to dissect out the cystic portion of this ovary, and thus conserve the remainder, but his effort to leave healthy ovarian tissue was absolutely futile. The entire organ was thereupon removed. The case before the court became, therefore, simply an issue of veracity between the doctor and the patient regarding the previous understanding, and the jury lost no time in deciding positively in favor of the doctor. And the long, weary months of worry, anxiety, and persecution that he has endured for the sake of vindicating his position, and securing for it the support of the public is worthy of all praise.

Recurring now to the questions previously propounded, it may be said that the patient is the sole arbiter of his own life so long as he satisfies the canons of his belief in God and a hereafter, and does not offend the social and statute laws of his country. If he chooses, while in the possession of sound mind to take the chances with disease, although it may be contrary to the best professional judgment and advice for him to do so, no human being shall gainsay him the privilege.

On the other hand, the surgeon, when once he has entered upon an operation, has only the highest welfare of his patient and his own reputation at stake, both motives inciting him to do what is for the patient's best interest. Moreover, the patient can never be made to comprehend the vital importance of many technical procedures. Even after the fullest explanation, he is frequently confused or he wholly misunderstands. He must trust the details and the methods of meeting exigencies as they arise to the judgment of his medical adviser. Still, the unexpected that frequently arises in the course of an operation may be of serious import, and lead to the sacrifice of organs or parts of the body far beyond the anticipation of either surgeon or patient. The best interests of the patient will, therefore, be conserved if he places himself in the hands of the surgeon, trusting in his judgment to do what is best. But the only safety of the surgeon lies in securing the consent of his patient to that view of the case before the operation is begun. Indeed, it is a good rule of practice habitually to secure such consent.

Some surgeons go so far in this matter as never to undertake a serious operation without first securing the written consent of the patient to do whatever in their judgment they shall adjudge necessary. In operations on advanced cases of cancer of the breast it sometimes develops that the only hope of eradicating the disease and securing the prospect of a cure necessitates the amputation of the arm at the shoulder-joint. A similar experience often befalls the surgeon in operations for the relief of bone diseases. And yet few men would venture to carry these operations to their fullest extent without a previous understanding that their judgment was to be used and trusted.

THE "FUROR SCRIBENDI."

NEVER, for a corresponding period, in the history of medicine, has there been such a flood of technical literature as the last decade has produced. It is true that this decade has perhaps furnished more material than any that preceded it, but, even discounting this, there has been a veritable plethora of medical articles, monographs, and books. Foremost, perhaps, among the books we see a revival of the "systems;" a system of practice of medicine, of nervous diseases, of surgery, of gynecology, and so on. Doubtless this method is in a general way satisfactory, though it has many and serious defects. In the first place, the articles are notably uneven. This prevents the "system" from being an authority, at least to a great extent. The good and bad articles are somewhat indiscriminately sandwiched, and from a height of admiration of a good chapter we descend to the depths of despair at a very bad one. Then, too, some of the more ambitious "systems" require such a long time in their preparation that the first volumes frequently have the mild flavor of a back number before the last volumes are through the press.

The temptation for a college professor to write a book is apparently almost irresistible, and few men in our larger colleges have withstood it. The inducement for the college professor is obvious; it makes his teaching decidedly easier, and he has an admiring, and in many instances, a buying audience in his students, past and to come. Of course, in very many cases, the college professor is eminently fitted for book-making, but it by no means follows as a matter of course that because a man is a professor in a college he is competent to write a book.

Then the immense multitude of journal articles! A multitude that no man, except the editor of the *Index Medicus*, can number. Nearly every city in this country boasts one or more medical journals, and the death of one seems to be the signal for two or three new ones to rise phenixlike from its ashes. It is not clear whether the *furor scribendi* is a cause or an effect of the multiplicity of medical journals. While most of the important work appears first in the journals, still there is such an immense amount of trash that the really valuable papers are often obscured.

A duty which is much neglected in our medical colleges is the training of the student in scientific writing. When he gets into practice and is attacked by the *furor scribendi*, he is very prone to choose a large subject. He is prone to revel in "typhoid fever," the "treatment of pulmonary tuberculosis," or "Bright's disease." If, instead of doing this, he would confine his ambition to some limited field—for example, instead of disposing of the whole subject of typhoid fever he would take part of the subject, and discuss from the standpoint of his experience the eruption or the relapse, or some special symptom, his paper might be of value. Again, many valuable observations are obscured by the title. A "case of appendicitis" is usually passed over as one of no special interest, while in fact it may contain a point of great importance which is lost to the reader because it was not noted in the title. One who reads many journals gets into the habit, perhaps unconsciously, of passing over the papers on a general subject, unless he has reason to expect something from the particular author, and looks for special studies upon particular points. This concentration of work upon a limited area is what has made the monograph so valuable. If then the *furor scribendi* is to continue, and there is no indication of its subsidence, let it be directed to careful and accurate observation in a limited field. There are many men throughout the country who can, from time to time, furnish valuable microscopic bits, but it requires a master to make a subject interesting, macroscopically.

ECHOES AND NEWS.

An Epidemic of Scarlatina.—An epidemic of scarlatina attended with great mortality is raging throughout Southern Russia.

The Increasing Frequency of Cancer.—The number of cancerous cases in England and Wales has increased from 4500 in 1840 to 40,000 in 1895.

Yellow Fever at Port au Prince.—Yellow fever of a malignant character has broken out at Port au Prince, Haiti. It will probably continue to be fatal for some weeks.

Unwholesome Sandwiches.—In Hollidaysburg, Pa., some sixty-five guests were poisoned at a social gathering by

eating ham sandwiches. Severe sickness, but no fatalities are reported.

Deaths from Tight Lacing.—Two London inquests held within a week have resulted in verdicts that death was caused by tight lacing. The autopsy in one case revealed cirrhosis of the liver.

Ohio Boards of Health to Regulate Plumbing.—By a provision of the last Legislature, any person, firm, or corporation engaged in plumbing in Ohio is required to take out a license. Inspectors of plumbing are to be appointed in each city or town.

The Grafe Gold Medal.—The German Ophthalmological Society has awarded the Gräfe medal to Professor Leber of Heidelberg. This honor is conferred every ten years. The first one was received by Von Helmholtz for his discovery of ophthalmoscopy.

A Clinic for Defective Speech.—The Polyclinic Hospital in Philadelphia has established a department for the cure of speech-defects which do not require surgical or special medicinal treatment. The department will take cases that need training in vocalization and articulation.

A Chair of Massage.—The University of Berlin has established a department devoted to massage, over which Dr. Zabloudovsky has been appointed professor. This modern therapeutic method has never before received such distinguished recognition in a great university.

Photographing the Retina.—At a recent meeting of the Paris Academy of Medicine, M. Guinkoff stated that he had photographed the interior of the eye successfully. Actual pictures of retinal disease can thus be secured and compared, from time to time, to determine the progress of the disease.

The Morgue-keeper Suspended.—A. N. White, keeper of the morgue at Bellevue Hospital since 1868, was suspended last week to await an investigation by the Commissioners of Charities. It is charged that there has been an unlawful traffic in dead bodies, and that three in particular are not accounted for.

A Good Stroke.—On November 10th the Illinois State Board of Health announced that the National Medical School, the Illinois Medical College, and the Durham Medical College, all of Chicago, had failed to comply with the requirements of the board, and were therefore excluded from official recognition, and their diplomas refused.

Damages Wanted for Catching Cold.—The Pullman Palace Car Company has been sued in St. John, N. B., for $25,000. The complainant alleges that the heating-apparatus, through the negligence of the company, failed to work, and that he contracted a violent cold while asleep, from which a long illness and permanently impaired health resulted.

Typhoid Antitoxin.—Many experiments have been made with only moderate success in elaborating an antitoxin against typhoid fever, but bacteriologists, with commendable zeal, are pursuing the investigation. Through the Department of State at Washington we are now informed that Professor Pfeipper and Dr. Kolle of Berlin have attained methods which promise to furnish most efficient and prompt results.

Football and Prize-fighting.—Mr. Crisp, a member of the Missouri Legislature, states that during the present winter he will introduce a bill to place the game of football on the same plane as prize-fighting, which, in the State of Missouri, is a felony. The difference between the two sports most apparent to a disinterested observer is that the element of danger in the one is multiplied eleven-fold in the other.

Typhoid Fever in Paterson.—Forty-five cases of typhoid fever have been reported in Paterson, N. J., during the past month as against twelve for the corresponding month of last year. The water-supply of that city is procured from above the Passaic Falls, and is considered exceptionally pure. The local physicians have so far been unable to offer a probable explanation for the infection, but report the cases as uniformly mild.

Lactation and Albuminuria.—Dr. Gamulin finds that the practice of suckling is, as a rule, favorable to the reduction of albuminuria, and to the satisfactory nutrition of both mother and infant. Of 158 albuminuric mothers under supervision, who nursed without interruption, only two showed an increase in the albumin excreted, while in only seven others did the amount remain stationary. Among 163 children nursed by those mothers the mean gain in weight was thirty-five grams per day.

Dr. Jameson's Condition.—Since submitting to an operation, about two weeks ago, the health of Dr. Jameson, of South-African fame, has been such as to excite grave alarm among his friends. On the 28th ultimo, under direction of the government, Sir William Broadbent visited him in the Holloway Jail, London, where he is serving a sentence of fifteen months. As a result of the examination, Sir William advised the speedy release of the prisoner. Even immediate removal may come too late to restore his shattered health.

Successful Use of Antivenene-serum.—A small boy in India was bitten upon the bare foot by a *Bungarus ceruleus*, which, next to the cobra, is considered the most destructive snake in India. Luckily, the boy was seen within three minutes after the accident by Surgeon-Major Rennie, who injected 8 c.cm. of Professor Calmette's antivenene. The effect was all that could have been desired, as the patient recovered without a bad symptom. This is the second or third case successfully treated by the serum, and is important, as the hope that it would prove an antidote against the venom of all varities of reptiles seems thereby confirmed.

Operation for a Ventricular Stab Wound.—At the recent meeting of the Congress of German Scientists and Physicians, Rehn of Frankfort showed a patient who had had a stab wound of the right ventricle. He was admitted

into the hospital moribund from copious hemorrhage. The speaker resected the ribs, exposed the heart, enlarged the opening of the pericardium, and sutured the wound in the ventricle. The operation was rendered more difficult in its later stages by the movement of the heart around its long axis. The hemorrhage ceased immediately after suturing. The operation was done fourteen days before the patient was shown.

An Ambulance-ship.—Surgeon-General Tryon and Secretary Herbert of the navy are both fully convinced of the great utility of adding to our navy one or more suitably constructed ships, whose duty shall be to save and care for all wounded and drowning men during an engagement. It is recommended that this vessel shall be of such size as will render it easy of control in action, and swift and efficient in rescuing the large number of sailors who are swept overboard in almost every naval conflict. Such a ship would receive the same consideration and courtesies accorded the wearers of the Red Cross by all civilized nations. The advantages of such a plan have been so impressed upon the minds of all who entertain a proper regard for the lives of our brave sailors that the equipment and trial of these ambulance-ships may be expected as one of the early improvements in the United States Navy.

CORRESPONDENCE.

SECOND PAN-AMERICAN MEDICAL CONGRESS.

Held in the City of Mexico, November 16, 17, 18, and 19, 1896.

[From our Special Correspondent.]

HOTEL DEL JARDIN,
CITY OF MEXICO,
November 20, 1896.

CONTINUING my account of the first day's session, Dr. Rafael Lavista of the City of Mexico followed with a paper on the subject of the toxin and antitoxin treatment of disease by subcutaneous injection of serum. He referred to the experiments made by himself and other Mexican investigators in the treatment of tuberculosis, leprosy, and cancer, and said that their results had not been encouraging. Patients suffering from syphilis had received temporary benefit from the treatment, but a cure had not been obtained in a single case. No satisfactory results had been obtained from the serum treatment of typhus, septicemia, or tetanus. He had had no experience with diphtheria nor typhoid fever, as both of these diseases were of rare occurrence in Mexico. The Mexican profession had very generally followed the practice of injecting large quantities of normal salt-solution as a preventative of surgical shock, and after hemorrhage, and always with marked beneficial results. Personally, he favored the intravenous method.

Dr. Ricardo Lee of the United States of Colombia then read a most interesting paper on "The Prophylaxis of Leprosy." He dwelt at length on the rapid increase of the disease in southern countries, and said that in Colombia it was giving rise to grave concern. He urged the adoption by the State of certain hygienic and social laws that would tend to prevent the spread of the plague, and laid stress upon the importance of encouraging immigration from other countries, whereby new blood would be introduced and the social status of the inhabitants improved.

The Third General Session of the Congress was held on Thursday evening, November 19th, and with its close, Minister Baranda officially declared the Second Pan-American Medical Congress at an end.

Dr. Porfirio Parra read an address, in which he referred to the recent advance in all branches of medicine during the past ten years, and he was followed by Dr. Charles A. L. Reed, who announced that the executive committee had decided that the next Congress would be held in December, 1899, at Caracas.

The official delegates from Canada, Cuba, Colombia, Guatemala, Nicaragua, Ecuador, Venezuela, and Costa Rica were then introduced, and each delivered an address.

The work done in the different Sections of the Congress was exceedingly interesting and valuable. In that devoted to General Medicine, on Monday, Dr. William Pepper read a paper on "The Use of the Röntgen Ray in Thoracic Aneurism," and exhibited a number of excellent skiagraphs in which the aortic enlargements were distinctly visible. He said that the taking of the skiagraph was probably made possible in these instances from the fact that the rays were arrested by the large amount of blood contained in the tumor, and were also influenced by its iron constituents. He had distinctly seen the pulsation of a human heart by the aid of a specially designed tube, and the anatomical parts of the organ were clearly to be made out. This great discovery of the X-ray was still in its infancy, as far as its application was concerned, and he had every reason to suppose that the next year or two would see remarkable advances in this direction.

Dr. Manuel Ruiz Casabó of Havana read a paper on "The Urine in Yellow Fever." This disease was so prevalent in his native city that his opportunities for studying and comparing the characteristics of the urine in it and other diseases had been of an exceptional kind. He said that the appearance of the urine in cases of yellow fever was very variable, according to the individual attacked, but that there were certain characteristic peculiarities that were nearly always present. He read a number of interesting tables of statistics, the result of his investigations.

He was followed by Dr. E. Acosta of Havana, who read a paper on the same subject, prepared by himself and Dr. J. M. Dávalos. It referred to the establishment in Havana, in 1887, of a bacteriological laboratory for the study of infectious diseases. Yellow fever had been exhaustively studied by the authors, and a large number of experiments on rabbits had been made. The conclusions arrived at were that the greater part of the toxin of the disease was eliminated in the urine, and that an examination of the fluid conclusively demonstrates the severity of the attack; that the amount of urea present in the urine bears no relation to the prognosis, and that the patient never dies from uremia, but from the constitutional effect of the toxin.

Dr. Tomás Vincente Coronado of Havana then read a paper on "The Biological Characteristics of the Blood in Yellow Fever," the sum and substance of his investigations being that in this disease the blood showed absolutely no change from the normal state. Blood taken with careful antiseptic precautions, a few hours before death, from a patient suffering from the disease, was precisely similar to that from a perfectly healthy individual. This fact conclusively proved that the seat of the disease was not in the blood.

"Cantharidal Blisters in Acute Pulmonary Affections" was the title of a paper read by Dr. José de la Cerna of Calimaya, Mexico. The author does not approve of the blisters in this connection, as their use will increase the local congestion, and is apt to decrease the amount of urine secreted. As the kidneys are always congested in acute pulmonary affections, one of the principal indications, that of free diuresis, is interfered with to a marked degree.

Dr. J. Llambías of Buenos Ayres read a paper on "The Spontaneous Rupture of the Aorta," in which he claimed that a satisfactory explanation of this accident had not yet been arrived at. He was inclined to think that it is primarily due to an interruption of the blood-current in the vasa vasorum, which ultimately leads to an endarteritis of these vessels, a necrosis resulting from this condition.

At the meeting of the same Section on Tuesday, the second day of the Congress, Dr. Ignacio Ortiz y Córdoba of Cuernavaca, Mexico, presented a case of perineoscrotal hypospadias in an individual, Maria Hernandez, by name, in whom the imperfect act of coition was performed as a male, but in whom the habits, dress, and character were those of a woman.

Dr. A. Holmes of Denver, Col., read a paper on "The Diagnosis of Tuberculosis by Means of a Microscopical Study of the Blood," and was followed by Dr. J. K. Crook of New York in a paper entitled "The Use of Creosote in the Treatment of Pulmonary Diseases." Dr. Holmes referred at length to all that has been accomplished of late in the microchemical study of the blood in tuberculosis, and claimed that in the position in which the science of medicine now stands it was possible not only to recognize the presence of the disease in its incipiency, but that certain marked changes may be made out in the blood of an individual who is of a tuberculous predisposition. He urged that investigations along this line be continued, and that the microscope be brought into requisition at every opportunity, as an early diagnosis of the disease would enable one to take advantage of approved therapeutic and climatic measures.

In the Section on Obstetrics and Gynecology Dr. A. Vanderveer of Albany, N. Y., presented a paper on the subject of "Uterine Fibroids Complicated With Pregnancy." He said that these cases are by no means common, and that unless the position of the tumor is such as will probably interfere with the labor, it is always advisable to delay any operation devised for its removal.

Dr. J. Ignacio Capetillo of the city of Mexico then read a paper on "Dystocia in Mexico," in which he said that on account of the comparative rarity of contracted pelves in Mexican women maternal dystocia is not of frequent occurrence. Prolapsus of the cord and placenta previa are most often met with.

"The Management and Surgical Treatment of Ectopic Pregnancy" was the title of a paper read by Dr. A. P. Clarke of Cambridge, Mass. He expressed the opinion that the galvanic or faradic current could be used to advantage in destroying the fetus, if used very early. In later cases one should always be prepared to do an abdominal section, as hemorrhage or sepsis is apt to be rapidly fatal to the mother if the case is not given immediate attention. Tubal pregnancies are the ones that usually give rise to most marked symptoms.

Dr. Emma B. Culbertson of Boston, Mass., presented the next paper on "The Ambulant Treatment of Certain Forms of Pelvic Disease." She said that many of the patients who apply for gynecological treatment are so circumstanced that the routine of their daily work must not be interfered with, and that, in consequence, the treatment must be so arranged as to be most efficient under these conditions. Malposition, inflamed and congested ovaries and tubes, endometritis, and venereal disease, are the usual affections of this class of patients, and should receive prompt and careful treatment.

"The Treatment of Face Presentations" was the title of a paper read by Dr. José Torres Anzorena, and "The Therapeutic Value of Rest," by Dr. Sarah H. Stevenson. Dr. Antonio Macías read an interesting paper on "The Use of Potassium Iodid in Passive Metrorrhagia," and Dr. E. J. Ill of Newark, N. J., closed the list with one on "A Contribution to the Surgery of the Female Perineum."

On Tuesday, at the second meeting of the Obstetrical and Gynecological Section, the proceedings were opened by the reading of a paper by Dr. J. Ignacio Capetillo of the city of Mexico, describing a case of hydatidiform mole, which had given rise to alarming uterine hemorrhage, and which had been diagnosed as placenta previa.

Dr. Manuel Barreiro, also of the City of Mexico, followed with a paper on "Puerperal Septicemia." He described the routine practice in all cases of confinement at the Maternity Hospital of the city of Mexico. The day following delivery a laxative, and a tepid antiseptic vaginal douche, is given, and the latter repeated every day during the entire puerperium. If the temperature of the patient arises, an intra-uterine douche is given, but if this is ineffectual, a curettage is resorted to at once. The curette may be used a second, and even a third time. The patient is carefully stimulated, especially with strychnia.

Dr. Gonzales de la Vega continued this subject, the title of his paper being "Observations on the Classical Treatment of Puerperal Septicemia," and other papers were read by Dr. Henry Schwartz of St. Louis, Mo., and Dr. Rafael Norma of Tulancingo, Mexico.

The Section on General and Orthopedic Surgery was called to order on Monday, and Dr. Angel Contreras of Puebla, Mexico, opened the proceedings by reporting the case of a boy, six years of age, suffering from tuberculosis of the knee-joint, who was cured by Albertin's method of arthrectomy.

Dr. George W. Crile of Cleveland, O., presented a paper on "Researches into the Technic of Laryngeal Operations, with a Report of Four Successful Total Extirpations," and was followed by Dr. A. D. Spohn of Corpus Christi, Tex., who exhibited a new device to be used in the treatment of fractures of the clavicle.

Dr. E. B. Smith of Detroit, Mich., read the closing paper, which was on "Gastro-enterotomy."

At the Tuesday meeting, Dr. J. A. Fort of Montevideo, Uruguay, read a paper on "Linear Electrolysis in Stricture of the Urethra," in which he described at length the method of procedure devised by him several years ago.

An interesting operation of intestinal resection and anastomosis was performed later on a large dog, at one of the hospitals, by Dr. J. Frank of Chicago, who demonstrated his method of procedure with bone buttons held together by a section of rubber drainage-tube.

Taken altogether, the second Pan-American Medical Congress has been an unqualified success. The papers presented, and the discussions, have been of a thoroughly scientific character, and much good is bound to result from the interchange of opinion between members of the profession living so widely apart. These results will undoubtedly be in evidence before the date of the next meeting. The hospitality and courtesy of those who have entertained us could not have been exceeded, and every visitor will carry away with him the happiest recollections of his stay.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

General Meeting November 27, 1896.

JOSEPH D. BRYANT, M.D., President.
(In charge of the Section on Obstetrics.)

J. CLIFTON EDGAR, M.D., read a paper on

THE TREATMENT OF ECLAMPSIA.

He said that about all that we knew, even at the present day, regarding the nature of puerperal eclampsia, was that it was a form of toxemia. Modern clinical research had, however, brought out the fact that the "pre-eclamptic state" often extended over a period of weeks or months, and manifested itself by easily recognized symptoms and signs. While Dr. E. P. Davis of Philadelphia had shown that where these toxic symptoms were present the urea would be found below 1.5 per cent., and that these symptoms were improved, or made to disappear, by stimulating the excretory organs to activity, it must not be forgotten that there are other toxic substances in the urine besides urea, and that eclampsia sometimes occurs even when the urea is excreted in normal quantity. While the etiology of the toxemia producing puerperal eclampsia was obscure and probably complex, clinical observation points strongly to the metabolism of the fetus as a prominent cause of this toxemia. The successful treatment of puerperal eclampsia must therefore depend upon a prompt recognition of the pre-eclamptic state. This was not to be accomplished by an occasional examination of the urine for albumen alone, as non-albuminuric eclampsia forms from nine to sixteen per cent. of the cases. Other sources of toxemia must be given due consideration. The treatment might be conveniently divided into three parts, *viz.:* (1) The reduction of the amount of nitrogenous food to a minimum; (2) the limitation of the formation and absorption of toxic materials in the intestine and tissues of the body, and the stimulation of the emunctories; and (3) the removal, if necessary, of the source of fetal metabolism by emptying the uterus. The first indication was met by an exclusive milk diet for a time; the second, by securing an abundant supply of pure air and water, and the taking of moderate exercise, together with a proper regulation of the bowels; the third, by the induction of abortion or premature labor, if the symptoms were urgent and did not abate under a milk diet and stimulation of the excretory organs. In cases of eliminative insufficiency, he had found it useful to administer about twice a week, at bedtime, a tablet containing 1 grain each of calomel, digitalis, and squills, and $\frac{1}{10}$ grain of muriate of pilocarpin. Care should be taken to protect the body-surface by good, warm clothing. It could not be too strongly insisted that the foundation of the preventive treatment of puerperal eclampsia was an exclusive milk diet. Regarding the induction of labor, it should be remembered that many obstetricians of repute objected to it on the ground that it produced a dangerous increase of the already abnormal reflex excitability, and was therefore liable to precipitate an attack of puerperal eclampsia. Certainly, this argument carried with it much weight, but, on the other hand, it could not be denied that at the present time it was possible to induce labor very quickly, without undue excitement, and at the same time terminate the pregnancy.

The curative treatment of puerperal eclampsia must be to a certain extent empirical so long as our knowledge of the pathology of this condition is so meager. There are three general indications, *viz.:* (1) The control of the convulsions; (2) emptying the uterus under deep anesthesia by some rapid method, and (3) elimination of the poisons which are presumably responsible for the convulsions. Of the drugs used for controlling the convulsions, he personally favored chloroform, veratrum viride, and chloral, in the order named. He used morphia much less frequently than formerly in these cases, because he had become convinced that it tended to prolong the post-eclamptic stupor, and to increase the tendency to death during coma by interfering with the eliminative processes. The power of veratrum viride to reduce the pulse-rate and the temperature, and at the same time to relax the cervix and produce diaphoresis and diuresis, made it an especially valuable remedy. As the danger from eclampsia was over in ninety per cent. of the cases as soon as the uterus had been emptied, the importance of early and rapid delivery was obvious. For this purpose, he believed the rapid manual dilatation of the os and the subsequent extraction of the child constituted the best method, but it should be remembered that unless complete dilatation of the internal os and paralysis of the cervix were obtained, there was great danger of rupturing the uterus, as well as of sacrificing the child by the closure of the cervix around the

armpits of the fetus during extraction. In cases in which immediate delivery was urgently demanded, and the internal ring of the os had been drawn up into the body of the uterus, and the external ring remained rigid, he would prefer to make four clean incisions extending from the edge of the os to the utero-vaginal junction. In addition, the bowels should be freely moved by croton-oil or calomel, followed by a saline, and by high enemata of a solution of magnesium sulphate. Diuresis should be excited by the application of cups and fomentations over the kidneys, and by the internal administration of glonoin or veratrum viride. Diaphoresis was best promoted by means of a hot-air bath. In this stage, pilocarpin was a most dangerous drug, tending to cause fatal pulmonary edema.

Much misapprehension has been caused, the speaker said, by the use of the term *accouchement forcé*. In its modern acceptation it was applied to the complete instrumental or manual dilatation of the cervical canal, followed by version or forceps, and the immediate extraction of the child. It does not mean the dragging of a fetus through a partially dilated os. As puerperal eclampsia was so much more common in primiparæ than in multiparæ, it often became necessary to resort to some method of preliminary dilatation of a rigid os before the more radical procedure could be attempted. This necessarily caused some delay, and during this time it would be found that the administration of veratrum viride would save many lives.

DR. E. P. DAVIS of Philadelphia said that he was becoming more and more convinced that the only really successful treatment of puerperal eclampsia was preventive —in other words the treatment of the preëclamptic state. The physician, in examining the urine of pregnant women, should determine the percentage of urinary solids as well as the albumen. Not infrequently the nervous symptoms —the mental depression, irritability, or headache—gave us the first hint of the impending danger. Here it would be found that a warm bath at night would not only give the needed rest, but would promote elimination. In the preëclamptic state there could be no doubt that it was the imperative duty of the physician to terminate the pregnancy if the eliminative treatment proved ineffectual. For the complete dilatation of the cervix he had found nothing better than the Barnes' bag. The control of the convulsion by chloroform was, of course, indicated. The emptying of the uterus by Cæsarean section would seem to be the ideal surgical method, but it should be remembered in considering the value of the child's life, and weighing its chances with those of the mother, that these children often lose their lives after birth from the same toxemia that has affected the mother. He had found atropin very useful at times for the control, not only of the convulsions, but also of the pulmonary edema.

DR. CHARLES JEWETT of Brooklyn said that he agreed with all that the last speaker had said about the significance of the nervous symptoms; nevertheless, he thought that in many instances these symptoms would not be brought to the notice of the medical attendant, and that, therefore, the attention of the latter should in all cases be largely concentrated on the condition of the urine as indicated not alone by the presence of albumen, but by the percentage of solids excreted. Where ordinary remedial and dietetic treatment failed to remove these symptoms and signs, the induction of labor was certainly justifiable. His inclination was to interfere too soon, rather than too late. He did not believe that in practice the period of viability could be placed much earlier than the ninth month. Chloroform was exceedingly useful in controlling the convulsions, but was dangerous if long continued. In addition to the rapid emptying of the uterus, he had depended mainly upon catharsis and diuresis, and the administration of veratrum viride. The latter he believed to be the most valuable of all the drugs used in puerperal eclampsia. Venesection was most useful, and, in his opinion, would gain more general recognition in the future. He had also found the injection of saline solution into the tissues and into the bowel an excellent means of favoring elimination. In the preventive, as well as in the curative treatment, he was in the habit of depending largely upon the free administration of water. He had found that an exclusive milk diet could not well be continued for more than two weeks at a time.

DR. EGBERT H. GRANDIN agreed heartily with Dr. Davis that puerperal eclampsia is a *preventable* disease; that is to say, if a pregnant woman has been for some time under the observation of her physician, she should not have eclampsia. We had been taught to watch too much for albuminuria, and too little for uremia. In a case of impending eclampsia, the rule should be rapidly to dilate the cervix with the hand and deliver. Any time after seven and one-half months of uterogestation, the hand alone could empty the uterus in less time than any drug could act, and the woman be thus placed out of danger. The procedure described and advocated by Dr. Edgar was not an *accouchement forcé*, for there was nothing forcible about it; it was simply the yielding of a muscle under pressure, just as in the familiar case of the dilatation of the sphincter ani. When time permitted, it was, of course, better to use a preliminary gauze-tamponade for six or eight hours, but where the symptoms were too urgent for this after seven and one-half months of uterogestation, rapid manual dilatation was the proper procedure. In his opinion, any one who, under these circumstances, could not dilate the cervix and empty the uterus within thirty minutes, in ninety-eight per cent. of the cases, did not know how to do it. Care should be taken to paralyze completely the lower uterine segment before attempting extraction. He always preferred chloroform, and gave it to the surgical degree. The dilatation should be performed finger by finger, until the whole fist could be introduced and the hand could be opened and shut. To secure proper elimination of the poison after delivery, he advised washing out the colon with sixteen or twenty gallons of hot salt water. He did not think Cæsarean section was called for when the lower uterine segment could be entered. He had only found it necessary to resort to deep cervical incisions in one case.

DR. W. T. LUSK said he regretted that there was at present a tendency among some modern obstetricians to

terminate pregnancy without what appeared to him sufficient reason. Calling a method the "surgical evacuation of the uterus" did not alter the fact that an abortion was performed. The existence of an insignificant quantity of albumen in the urine called rather for dietetic treatment than for radical surgical interference. If the daily quantity of urine were much below the normal daily average, in the absence of other urgent signs and symptoms, the indication was to put the patient on an exclusive diet of milk. In his opinion, the artificial evacuation of the pregnant uterus was not so simple and insignificant matter as many claimed. As every convulsion adds to the dangers of the mother, any method which would save her from even one or two convulsions was of benefit. He believed that he could secure nearly as rapid results from the Barnes' dilator as from almost any other method. It had been found that Duhrssen's deep cervical incisions were liable to be followed by serious hemorrhage.

DR. JAMES W. MCLANE said that the cases of puerperal eclampsia coming under his observation could be divided into two grades, *viz.:* (1) The more common variety in which there was a mild toxemia, associated with slight albuminuria, and but few nervous symptoms; and (2) a much more severe form—a sort of toxemic explosion of complex origin. The patients coming under the first variety he rarely treated medicinally, preferring to keep them on a milk diet, insisting on rest in bed for a part of each day, and the taking of a daily bath, with very moderate exercise. From what he had seen of the second class he could not agree with those who said that puerperal eclampsia is an entirely preventable disease. He had known of several cases in which notwithstanding frequent and careful examinations of the urine, an attack of eclampsia had occurred. If seen prior to the attack, when the pulse was full and bounding, and the patient complained of severe headache and dimness of vision, nothing could yield better results than a venesection of perhaps sixteen ounces of blood. He did not at all agree with those who believed that the child was damaged by the mother's condition, and, in support of this view, cited a case in which after twenty-seven convulsions the mother had given birth to a vigorous child. He had found that prompt rupture of the membranes often acted nearly as well as venesection in controlling convulsions. He had seen cases in which it had been utterly impossible for the strongest hand to dilate the cervix in thirty minutes except the uterus were ruptured. He would prefer a gentler method because of the probable disastrous effect on the impressionable nervous system of the eclamptic woman. After delivery he favored giving small quantities of chloroform by inhalation for some time, the patient being kept in a hot pack, then substituting morphia for the chloroform. He had not used veratrum viride because in most cases he had found the pulse small and feeble after two or three eclamptic attacks. A steady and excessive rise of the body-temperature was a very bad prognostic sign in puerperal eclampsia. As he had known pilocarpin to produce fatal edema of the lung in cases of puerperal eclampsia, he regarded its administration in this condition with horror.

DR. ROBERT A. MURRAY said that he had often been well pleased with the beneficial action of early rupture of the membranes in these cases. However, venesection should be considered the sheet-anchor of the obstetrician in dealing with these cases. A busy physician might easily neglect to examine the urine of the pregnant woman for urea, but he had no excuse for omitting to take the specific gravity, and so determining the quantity of urinary solids being excreted. He could corroborate everything that Dr. Grandin has said about the rapid manual emptying of the uterus, and its success, even in primiparæ. He did not see how any one could rupture the uterus during dilatation, although it might easily occur during the process of extraction. The process of manual dilatation could be substantially aided by venesection and the use of chloroform, and when the operator's hand became tired it could be withdrawn for a few minutes, and the uterus allowed to relax. One great advantage of the manual method was that it enabled the obstetrician to determine quickly the relative size of the fetus and the maternal pelvis, and so guided the operator in the choice of the method of delivery. A large proportion of the children born of mothers suffering from eclampsia died of uremia after birth, even when delivered normally.

DR. PHILANDER A. HARRIS of Paterson said that he had employed, with much satisfaction, a method of manual dilatation which he had devised, and the results certainly supported the position taken by Dr. Grandin.

DR. BERNARD E. GORDON said that he had also found that rapid delivery could be effected by the hand.

DR. EDGAR, in closing the discussion, said that he was grateful to Dr. Davis for referring to the train of nervous phenomena as symptoms of the preëclamptic condition, as these had been omitted from his paper. He had come to rely so much upon the physical signs that the nervous symptoms seemed of minor importance. Still, it must be admitted that in some instances these very nervous symptoms are the earliest clinical index of an approaching eclamptic seizure.

He had only found the hydrostatic bags of Barnes useful as preliminary measures, *i.e.*, to prepare the cervical ring for a more rapid and thorough subsequent dilatation. Cæsarean section as a means of rapid delivery in an eclamptic attack he would absolutely reject. Charpentier had shown, as had been pointed out in the paper, that the operation still carried with it a maternal mortality of 36.26 per cent. in eclampsia. Moreover, in the absence of pathological conditions of the cervix, he believed there was no cervix that could not be dilated, either by manual dilatation or incision, in sufficient time to meet every indication. He was in accord with Dr. Davis as to the value of atropia hypodermatically, not only for the edema of the posteclamptic state, but also for its antieclamptic action. The point which he wished to make the most prominent in the paper was that the only successful preventive treatment of puerperal eclampsia rested on the early recognition of the preëclamptic state, as shown in the early diagnosis of eliminative insufficiency.

He was quite in accord with Dr. Jewett's proposition, that it was far better for the patient suffering from eliminative insufficiency to have labor induced too early rather

than too late. Dr. Jewett was the only one who had referred to the stupefying action of chloroform. This he had only touched upon in the paper, and believed it should be given greater prominence. He was satisfied that the less anesthetics and narcotics the patient received the better. Not only chloroform, but morphin, chloral, and the bromids deepen the posteclamptic stupor and coma, and increase the tendency to death during the coma by reason of these drugs interfering with the eliminative processes. In certain maternities, chloroform had been abandoned, except where operative interference was demanded. He relied, as far as possible, upon veratrum viride, which not only controls the convulsive seizure, but promotes diaphoresis and diuresis. He considered the statement that after seven and a half months all cervices would yield, and allow of manual delivery within thirty minutes, dangerous teaching. It was just such statements that had led to the accidents referred to in the paper. Further clinical experience, he was sure, would cause the speaker to modify this statement. He agreed with Dr. Lusk that the daily amount of urea excreted was only one physical sign; but when considered in conjunction with other signs and symptoms, one could properly decide whether such operative interference as the induction of labor was demanded. The use of the Barnes' bag was an excellent preliminary measure, but to secure full dilatation, so that the fetus could be extracted with safety to both itself and mother, it was not to be compared, in his opinion, to the careful bimanual stretching and paralyzing of the cervical rings. Dr. Murray's statement that it was impossible to rupture the uterus during the performance of a manual dilatation was answered by the instances of partial and complete rupture of the uterus referred to in his paper. He was familiar with Dr. Harris' method of digital and one-handed dilatation of the os, and had given it a trial in hospital practice. Personally, he had found the bimanual method the most satisfactory, particularly for the reason that he could produce complete paralysis of the external ring of the os. This he could not do with Dr. Harris' method. He could not subscribe to Dr. McLane's practice of early rupture of the membranes as an efficient antieclamptic measure. It was true that the rupture of the membranes at this time apparently controlled the convulsions temporarily, but his experience had been that subsequently the presence of the fetus in the uterus, not surrounded by its cushion of liquor amnii, was a greater source of peripheral irritation than when the membranes were intact and the liquor amnii present. The worst instances of eclampsia seen in the emergency-cases of the maternity hospitals were those in which the membranes had ruptured early spontaneously, or had been artificially ruptured in the first stage. Moreover, the subsequent labor was prolonged, and the difficulties and dangers of operative interference enhanced by such a procedure.

It had been the experience of most observers that the high arterial tension does not always diminish or disappear after one or two eclamptic seizures. He had seen many cases in which the high tension had persisted for days, and even several weeks, and in which the continued use of glonoin and veratrum viride had been necessary to combat this symptom and prevent subsequent eclamptic attacks. While he objected strongly to the use of pilocarpin in the presence of an eclamptic attack, he believed it would be found a valuable adjunct in the treatment of the eliminative insufficiency of pregnancy—the preventive treatment of eclampsia.

That those eclamptic women do best in whom a rapid dilatation of the cervix and evacuation of the uterus is not performed, is the teaching of Charpentier of Paris; but, as the reports of the last Congress show, he stands almost alone in the world in this position. The speaker said that the greater his clinical experience with puerperal eclampsia, the more convinced he was of the truth of Duhrssen's statement that in ninety per cent. of eclamptic cases the danger was practically over when the uterus had been rapidly emptied early in the attack. He was firmly convinced that a careful study of the anatomy and physiology of the pregnant and parturient cervix would satisfy any unprejudiced observer, that the operation could not only be performed without any additional danger to mother or child, but that it was a life-saving procedure for both parties concerned.

Violation of the Postal Laws.—A Cincinnati physician was recently fined $100 and costs for sending a dunning postal card to a delinquent patient.

Honored by the Chinese Emperor.—Surgeon-Major Hueston of the British army, professor in the medical school at Tientsin, has been made a mandarin. He has also received the decoration of the Order of the Double Dragon from the Emperor of China.

Tuberculosis in French Colleges.—The Minister of Public Instruction in France, in a letter to the rectors of universities, directs that tuberculosis shall be added to the list of contagious diseases. He says that the interests of the patients themselves imperatively demand that they should not be under college discipline.

The Yucca-palm in Surgery.—In Los Angeles, Cal., a manufacturing plant is devoted to making splints and various similar surgical appliances from the wood of the yucca-palm obtained from the Mojave desert. When seasoned, the fiber is so tough, light, and hard that it has no rival for the above-mentioned purposes.

Effect of Antipyrin on the Kidneys.—Cardi and Tallini, from a series of experiments on animals, conclude that antipyrin has a direct constrictive effect upon the renal blood-vessels, and increases the general blood-pressure slightly and transiently. This is accompanied by a diminution in the renal secretions, which persists for some time.

Ozone and Tuberculosis.—Out of thirty-eight cases treated with ozone, Labbi and Indén report seven cured in the first degree, six in the second, sixteen markedly improved, and six died. There was a notable increase in the oxyhemoglobin, and in the numbers of the red blood-corpuscles. The inhalations were only given for fifteen minutes daily.

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ORIGINAL ARTICLES.

THE TREATMENT OF APPENDICITIS.[1]

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I INTEND to give you an informal talk to-night, dwelling especially upon certain questions of treatment of appendicitis. It is a singular fact that inflammation of the appendix vermiformis as a separate disease had not been identified nor described by pathologists previous to 1886. In that year a paper upon pericecitis appeared by Dr. Reginald H. Fitz of Boston. This gave the true pathology of a disease which is now so well known. In the development of our present knowledge of the pathology and treatment of appendicitis there have been three well-marked stages. The first stage began when Willard Parker first practised opening the so-called perityphlitic abscesses. This was in 1866 or 1867. Dr. Henry B. Sands was at that time Dr. Parker's partner, and I was a student in Dr. Parker's office. Dr. Parker deserved great credit for his boldness and originality. At first he opened only large, dull, and clearly defined abscesses, letting the smaller and less plainly marked ones go. After Dr. Parker's retirement from active practice, Dr. Sands carried on the work which the former had so well begun. As said above, however, the true pathology of the condition was not known until the appearance of Dr. Fitz' paper in 1886, which explained the lesion so accurately that no material addition has since been made to the pathogenesis of the disease. The proper surgical treatment was not determined for some time after this. This period of the development of the treatment was the second stage. Dr. Sands was constantly working at this surgical problem, and to him is due the whole credit for bringing the operation to a state of perfection. Thus the third stage of the development of the surgical treatment of appendicitis was reached. Dr. Sands first successfully removed the diseased appendix from a young boy, a patient of Dr. Simon Baruch. It is a matter of surprise that the name of this operator is so seldom met with in the literature of the subject at the present day. Certainly one would expect that he would receive more general acknowledgment for this brilliant surgical achievement.

The obstinate resistance which Dr. Sands' operation called forth in many quarters seems laughable as we look at it now. In that day nearly every one agreed that the disease, in common with general peritonitis, should be treated with opium. Even progressive surgeons shivered at the thought of an operation which proposed to invade the abdominal cavity so freely. Only six years ago a surgeon of large experience decided against operation in a case of appendicitis because, as he alleged, all of his cases had recovered without operation. Another surgeon, in a paper published five years ago, claimed that twenty other diseases might be confounded with appendicitis. It was alleged in a paper that appeared in a recent number of a prominent medical journal that the cause of the disease is rheumatism, and the treatment should therefore be antirheumatic. Such suggestions may be, and no doubt have been, productive of much harm by inducing practitioners to dally with cases of appendicitis expecting the administration of salicylates, salol, etc., to do good. Is there any purely medical measure which may be relied on to cure this disease? I know of none. Perhaps it is as well that we should know that there is no remedy of a medical nature, because while we are searching for some drug to cure the patient we may be doing him irreparable damage by delay. Appendicitis must logically, I think, be placed among the surgical diseases. This does not mean of course that every case must be operated upon, nor, on the other hand, does it follow that because certain cases recover without surgical interference the complaint is to be taken out of the list of surgical diseases. I would not be understood as saying that many purely medical men are not as clever as any surgeon in making the diagnosis of appendicitis, and as anxious to have the case treated on the best surgical principles. There are two classes of medical men who take different views of the treatment of the disease: one I have just mentioned; the other looks upon all cases as really medical in character, seldom requiring any surgical measures for their relief. These practitioners approach the subject from totally different standpoints and too often prejudge a case without studying the conditions with sufficient care. The disease is therefore not so well studied or handled as it might be. This state of things is, however, gradually being cleared

[1] Read before the Orange Mountain Medical Society.

up, and in time the disease will surely be placed in its proper category.

As illustrating the evils of an improperly handled case, I might cite one which has recently occurred to me, and which was one of the worst cases I have seen. A young lady of good family, under the care of a medical man, who, I am glad to say, was not a regular practitioner, was suffering from her ninth attack of appendicitis, which she and her family were assured was enterocolitis. The patient herself recognized the nature of her ailment, and demanded an operation. I was called in after the patient had been ill eight days, and while recognizing the extreme gravity of the situation yielded to the solicitations of the patient and her friends to give her the only chance which, in my judgment, remained, *viz.*, an operation. The first incision gave vent to a quart of pus, which spurted to the height of a foot. This was an aggravated case of septic peritonitis due to appendicitis, and naturally terminated fatally.

We are very far from possessing any exact knowledge as to the primary cause of appendicitis. My whole thought has run toward a stoppage of the drainage from the appendix into the colon as the true cause of the disease. There may be an interference with the emptying of the contents of this little tube, due to several lesions; as, for instance, a concretion in the appendix itself, or a stricture, or accumulations of fat causing displacements, or there may be a kink or twist, either in the appendix itself, or in a fold of the colon. I have never seen a case in which there was no interference with the drainage, and I am inclined to the opinion that this cause may account for all the cases. If the appendix be examined *in situ* before its relations have been disturbed, in quite a number of cases the obstruction will be discovered; in others, on the other hand, the cause of the interference with the drainage may have been swept away. If we have a patient not susceptible to sepsis, there may have been only temporary obstruction of the appendix, and only slight constitutional symptoms; while in another, with a similar obstruction, there may have been marked sepsis and great depression from the first, and the case may become rapidly fatal unless relieved by operation. In most cases of stricture no benefit can be expected from preliminary measures of treatment.

I think that the preliminary treatment is often worse than useless, and that the measures adopted in the very beginning are of extreme importance as regards the prognosis. A common procedure is the administration of a large dose of morphine, which quiets the pain and relieves the distress of the patient, but masks all symptoms. This prevents the proper study of the early stage of the complaint, the stage which is the most important both as regards diagnosis and treatment. The question of the rapid or gradual increase in severity and the advent of sepsis are obscured by the opium-treatment. A patient presenting himself with severe abdominal pain, whether he has fever, nausea, vomiting, prostration, and constipation, or not, should be *suspected* of having appendicitis. The most probable cause of sudden, severe, and not otherwise easily explained intra-abdominal pain, is appendicitis. Such a patient should be put to bed and thoroughly examined; very little opium or other anodyne should be given, but the patient must be kept at rest and most carefully watched. If the diagnosis can be made during the first six hours, and the patient can be kept under observation for six hours longer, the progress of the disease may tell the whole story. Certainly, in twenty-four hours from the beginning of the attack, we may be able to decide not only as to the diagnosis, but as to the probable course and result of the case. In my opinion, many of the casualties in this disease are due to neglect of the precautions which I have just recommended. The earlier the choice can be made between operative and palliative procedures the better for the patient.

The question of the proper time to operate in an acute attack of appendicitis would call for a week's discussion, and cannot be answered dogmatically for every case. Indeed, no two cases are alike, and each must be treated according to the indications. Certain well-marked symptoms must be watched for and their value carefully determined in each instance. Let us suppose an average case. The patient has had one or two attacks of vomiting; the pulse is only moderately accelerated, and is of good volume and strength; the temperature is about 100° F.; there is abdominal pain, perhaps quite severe, at first diffused, then settling into one point about half-way between the anterior-superior spine of the ilium on the right side and the umbilicus. If in five or six hours there is no increase in urgency, the patient is not in immediate danger; if in twelve hours there is still no increase in the severity of the symptoms, the patient should soon begin to improve. On the other hand, if the urgency of the case has steadily increased in twelve hours from the time when we were able to make the diagnosis, an operation will probably be called for. If I can safely allow a patient to get over an acute attack before operating, I always prefer to do so. If in twenty-four hours from the beginning of the attack the symptoms lessen in severity, I usually feel sure that I can leave the case to nature for the time being, and defer my operation to a more favorable period. Such an attack ought to subside in from forty-eight to seventy-two

hours. If, however, during the second twenty-four hours of the attack I am doubtful of the outcome, I always advise an operation. This is of course only an imperfect answer to the question, when to operate.

In a given case, one practitioner gets his idea of the course of the attack in one way, and another in another; one relies more upon the facies, another upon the pulse, and a third upon the patient's strength. Here of course experience is of the greatest value. Just as soon, however, as the conclusion is reached that the disease is progressing, the time has come to operate.

I have been asked if I operate on all cases of appendicitis in which the symptoms have practically disappeared, and I have replied that my feelings have changed so much of late that I feel quite willing to do so. Treves lays down the rule that when attacks have been very numerous, and when they have been increasingly severe and threaten life, operation should be done. My own view is that after two attacks a patient will as surely have the third as that after ten attacks he will have the eleventh. There is no rule which applies to the severity of the succeeding attacks. We know, however, that each attack renders an operation more and more difficult, and that it requires a larger incision and involves greater injury to the abdominal wall.

As to the success of the operation itself, all the advantages lie with the operation that is done between the acute exacerbations of the disease. In such an operation we may look for a convalescence of from two to three weeks, unaccompanied by danger from sepsis, or the occurrence of a ventral hernia, and the mortality is almost nothing. In an operation during an acute attack, on the other hand, the prognosis is more grave. The period of convalescence will probably last for about six weeks, and there is decided danger of sepsis and of a subsequent hernia.

The decision of this question, namely, whether or not we can safely allow an attack to go on, and defer the operation, calls for the best possible judgment and experience. In operating between the attacks there is, moreover, a safe time and a bad time. No matter how favorable the patient's condition may seem to be, it is rarely safe to undertake an operation in less than two weeks after an acute attack, for the reason that although the subjective symptoms may be favorable, the local septic condition may not have been entirely removed. After the lapse of two weeks or more all congestion, inflammatory thickening, and danger of sepsis will have disappeared.

I always use a gauze-drain except in cases of general septic peritonitis; then, in addition to abundant gauze-drainage, I use a long glass tube, which extends down to the floor of the pelvis. I use a ten-per-cent. iodoform-gauze. I have never seen iodoform-poisoning after packing the abdominal cavity with iodoform-gauze.

Formerly, I was more willing to operate during the attack than I am now. My feelings have changed because now we can offer the patient an operation without danger of hernia, if done between the attacks, and this, in addition to the other advantages of the intermediate operation, has led me to prefer it, and to always endeavor to obtain it.

What is the cause of death in appendicitis? In the acute cases, in which operation is done as soon as the diagnosis is made, it is very rare that the result is fatal. This is true of operations in the hands of all operators who have reported their cases. Also when done in the intervals of attacks, operations are enormously successful. Judging from the results, this operation seems like a light and easy thing. Operations done on patients after two or three, or even four attacks, are very successful. When an operation is undertaken on a patient who has suffered from very numerous attacks of inflammation, when there are adhesions and broken-down tissue to embarrass the surgeon, and to increase the risk of sepsis, we get an occasional bad result.

The chief cause of death is, therefore, delay of one sort or another. If the cause of death be general septic peritonitis, this comes late in the attack, and after the time when a good diagnostician should have recognized the disease; therefore, had there been no delay, there would have been no septic peritonitis, which is, as you know, one of the principal causes of death in appendicitis. In the cases which have gone on to the formation of abscess, each day's delay increases the difficulty and the danger of an operation, which at first might have been easy and safe, so that finally it may become an impossibility. Again, then, *delay* is the principal cause of death.

After an abscess has formed, the proper time to operate has given rise to considerable discussion. Treves, for instance, maintains the view that when suppuration has been walled in, the longer one waits before operating the nearer the pus will come to the surface. This is, in my opinion, an unscientific and unwarranted statement, because instead of approaching the surface the pus may be traveling upward toward the liver or downward into the pelvis. My own opinion is, as I said before, that in abscess-cases the sooner the operation is done the better. In such cases, if the appendix has not yet softened and broken down, and where only a small area of the peritoneum has become involved, the organ can be easily removed in most instances; but in older cases, where we meet with more advanced peritonitis, with adhesions and

formation of much pus, the softened and broken-down appendix may be unrecognizable, or if recognized it cannot be safely handled or removed. An abscess opening into the gut results in one of two ways: either the disease is cured, or the appendix remains and another abscess is set up, which may discharge in the same way. I would not operate in such cases unless the abscess recurred.

This brings us to the question of the removal of the appendix in every case. A discussion upon this point has been carried on in Philadelphia, and many operators hold that the organ should always be searched for until found and then removed. In point of fact, in some cases the appendix cannot be found; it may be hidden by a thick and more or less impenetrable wall of inflammatory tissue, and when this happens, it is frequently better to give up the search for fear of making an opening into the intestines. In many cases, too, the search will consume too much valuable time, and may lead to needless and dangerous enlargement of the wound. If the wound is thoroughly cleansed and free drainage established, little is to be feared from remnants of the appendix left in the body. If such a piece of tissue gives rise to trouble and sets up an abscess it can be operated upon secondarily. I remember a case in which death followed an ill-advised search for the appendix. An abscess-cavity about three inches in diameter had been opened, but the general peritoneal cavity was intact. As the operator did not discover the appendix, he took a sponge and so vigorously wiped the abscess-wall that he broke it, and through this rent a loop of intestine protruded and immediately drew back into the abdomen, but in that instant it had become infected, and it gave rise to a fatal septic peritonitis.

As to the sequelæ of the operation. I have not found fecal fistula so serious a complication as I feared it would be. Nearly all of these fistulæ close spontaneously. The escape of a little feces is not usually dangerous. Where these fistulæ will not close, if anything is to be done it should be done very deliberately and carefully. The only safe procedure is to enter the peritoneal cavity at some other point than through the fistula. If the fistulous opening is enlarged the intestine is pretty sure to be wounded, but an opening, say a little above the fistula, is safe and easy.

Continued Fever.—Dr. Parson reported to the Royal Academy of Medicine in Ireland a case of typhoid fever in which the attack occupied a period of 290 days. After hearing his detailed account of the patient's condition from onset to recovery, the members agreed with him in pronouncing it a case of genuine typhoid fever, with perhaps an undiscovered complication.

TUBERCULOSIS IN INFANCY AND EARLY CHILDHOOD, WITH SPECIAL REFERENCE TO THE MODE OF INFECTION.[1]

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It is not many years since tuberculosis was thought to be a rare disease in infancy; but we now know that it is quite as frequent as at any other period of life, and probably even more than this. While not common in private practice, tuberculosis in hospitals and institutions is to be ranked among the common infectious diseases.

In 500 autopsies made upon children in Munich, Müller found lesions of tuberculosis in forty per cent. This, I believe, is a far greater proportion than is seen in the institutions of this country. In 1045 consecutive autopsies, from the records of the New York Infant Asylum and the Babies' Hospital, tuberculosis was found in but ten per cent. of the cases, the number being somewhat higher (fourteen per cent.) in the Babies' Hospital, where only sick children are received, than in the Asylum (eight per cent.), where this was not the case. The observations which I shall present are based upon a study of these autopsies, to which are added 17 made elsewhere, or 119 in all. Of these cases, 57 died during the first year, 39 during the second year, 32 between the second and fifth years, and only 15 were over five years old. In the following table are given the visceral lesions that were found:

THE FREQUENCY OF THE VISCERAL LESIONS IN 119 AUTOPSIES UPON TUBERCULOUS CHILDREN.

Organs.	Number of Cases.	Per Cent.
Lungs	117	99.0
Pleura	69	58.0
Bronchial lymph-nodes	108	96.0
Brain	40	37.0
Liver	77	65.0
Spleen	88	75.0
Kidneys	46	39.0
Stomach	5	4.0
Intestines	40	37.0
Mesenteric lymph-nodes	38	35.0
Peritoneum	10	9.0
Pericardium	7	6.0
Endocardium	1	0.8
Thymus	3	2.5
Suprarenal capsules	2	1.7
Pancreas	3	2.5

Infection of a child with tuberculosis may take place through the skin, through a wound which has been accidentally inoculated, through the eyes,

[1] Part of a paper read at the New York Clinical Society, November 27, 1896.

through the placental circulation in intra-uterine life, and through the alimentary or respiratory tract.

Primary tuberculosis of the skin in young children is so rare that it may be dismissed with a mere mention. As examples of wound infection may be mentioned the bite of a person suffering from tuberculosis, or the rite of circumcision performed by one who has the bacilli in his saliva. The latter is known to have produced tuberculosis in a number of well-authenticated cases.

Intra-uterine Infection.—This was not demonstrated in any of my own cases, although I think it highly probable in all of the cases, five in number, which died during the first three months of life. Three of these were under two months old, one being but twenty days, and two but seven weeks old. The child who died on the twentieth day was born prematurely of a mother who was suffering from advanced tuberculosis. The mother died shortly after the child; the autopsy showing in her case, besides the lesions of general tuberculosis, a tuberculous endometritis. The child had cheesy bronchial glands, and miliary tubercles and small tuberculous nodules in the lungs, but none in the alimentary tract, the spleen, or the liver. That lesions were not found in the liver may be thought to be rather against infection through the placenta; but not necessarily so, for in several of the congenital cases bacilli in numbers have been shown by animal inoculations to be present both in liver and spleen, though no tuberculous lesions were found. They may also readily reach the lungs through the ductus venosus and vena cava, without passing through the liver. In one of the children, dying at the age of seven weeks, cheesy nodules were found in the lungs and in the spleen. In the other dying at this age, the mother was suffering from advanced tuberculosis, and died eleven days after the birth of the child. At four weeks old, when it was first seen, the child weighed but three pounds. The autopsy showed an extensive tuberculous pneumonia, with cheesy bronchial glands and tuberculous deposits in the spleen, liver, intestines, and mesenteric glands.

Aside from the observations which have been published regarding tuberculosis in calves born of tuberculous cows, intra-uterine infection through the placental circulation has been demonstrated in the human race by the cases of Birch-Hirschfeld, Lehmann, Bar and Rénon, and others. In Birch-Hirschfeld's case,[1] the organs of a fetus taken from a woman dying from general tuberculosis were found to contain tubercle bacilli, although no tuberculous lesions were present; bacilli were also found in great numbers in the placental tufts. In Lehmann's case[2] there were tuberculous lesions in the placenta as well as in the child's organs. Bar and Rénon[3] made inoculations in guinea-pigs with the blood drawn in five different cases from the placental extremity of the umbilical vein, where women with advanced tuberculosis were delivered either of living or still-born children. The results of these injections were negative in three cases, and positive in two. In one of the latter the child was still born, although living the day before birth. No tubercle bacilli could be discovered with the microscope in any of the child's organs, but they were shown by inoculation in animals to be present in the spleen, liver, and peritoneal fluid. In their second positive case, the child lived for forty days and died of acute bronchopneumonia. No report of an autopsy upon the child is given in the abstract of their paper (I have not had access to the original). The placenta appeared normal, but contained bacilli, as was demonstrated by animal inoculations.

From all these cases it would appear that the child often escapes even though the mother may be suffering during pregnancy from active tuberculous disease. With latent disease the chances of such infection of the child are certainly small.

In most of the cases where children die of tuberculosis during the first two or three months of life, I believe the probabilities to be very strongly in favor of intra-uterine infection. In all later cases, however, it is much less probable than that infection occurred subsequent to birth.

Infection through the Alimentary Tract.—The source of primary infection of the alimentary tract may be either the milk of a tuberculous nurse, or tuberculous cow, or tuberculous meat.

All of these I believe to be extremely rare. Their importance in the etiology of tuberculosis in infancy I think has been very greatly exaggerated. In the series of autopsies above given, there was not one in which a careful study of the lesions made it at all probable that the primary lesions were of the stomach or intestines, and in sixty-three per cent. of these cases the intestines were not affected at all. In the cases where the stomach and intestines were the seat of tuberculosis, with very few exceptions, the disease has been only slightly marked in that locality, while very advanced in the lungs and bronchial lymph-nodes. The intestinal ulcers of tuberculosis in infancy are usually small and superficial and not numerous, as compared with those seen in children over two years old.

The great infrequency of primary infection through the alimentary tract is also shown by the experience of Northrup,[4] who, in a series of 125 autopsies upon tuberculous children, mainly infants, found but a single case in which the infection appeared to

have occurred in this manner, as against eighty-eight, in which it was clearly through the bronchial lymph-nodes.

That bacilli may pass the mucous membrane of the intestine without producing disease in it, is not impossible. I have been looking for years for a case where the mesenteric glands were manifestly tuberculous, without tuberculous ulceration of the intestine, and I have yet to find the first one. Often the ulcers have been so small and so few as to be discovered only by a most careful search, but, so far, some have always been found.

The intestines are more frequently the seat of tuberculous disease in older children than in infants, as is shown by the Reports of the Pendlebury Hospital of Manchester, England. In 131 autopsies on cases of tuberculosis in children, most of whom were over three years old, the intestines were involved in fifty per cent. of the cases, against thirty-seven per cent. in my own series of autopsies.

Considering how extremely susceptible are the intestines of infants to other forms of infection, this contrast is rather surprising. The explanation of the difference seems to me to be this: Intestinal infection is nearly always secondary to disease of the lungs. Infants usually die from the more rapid tuberculous processes in the lungs or brain before there has been time or opportunity for intestinal infection to occur. The opportunities for such infection depend upon the number of bacilli which are coughed into the pharynx and swallowed. In infancy this number is small, because so many die of tuberculous pneumonia or meningitis before extensive softening in the lungs has taken place. In older children the slower course of the pulmonary disease gives ample time for intestinal infection, while the more extensive softening and excavation are accompanied by discharge of a much larger number of bacilli.

Unless the udder is the seat of disease, the number of bacilli contained in cow's milk is so small that infection from this source can hardly be considered as anything more than a possibility. The same may be said of the milk of tuberculous women. From tuberculous meat, also, the danger is a very small one, as tuberculous deposits in the muscles are extremely rare. Bollinger was unable to induce tuberculosis in animals by feeding them upon the expressed juice of such meat.

In this connection, the following incident is interesting as bearing upon the other side of the question: Near a large American city was a fancy stock-farm of registered Jersey cows, which supplied milk for table use and infant-feeding to a large number of families in the wealthiest part of the city, for a period of over ten years. At the end of that time the tuberculin test was used for the first time, and forty-five per cent. of these cows were found to be tuberculous, and were killed by order of the State Board of Health. The diagnosis was confirmed by autopsies upon the animals in every instance. An investigation was instituted among the children who had been fed upon this milk, but in only one case of many hundreds could it be learned that tuberculosis had developed, and in this instance it was by no means established that the milk had been the source of infection. It should be stated that this was before the days of sterilizing milk for infant-feeding. Besides the families who took the milk in the manner mentioned, the employés at the farm were accustomed to drink the skimmed milk in large quantities daily as a beverage in place of water. Many of them continued to do this for years, and yet not one of them developed tuberculosis.

There is, I think, little doubt that tubercle bacilli, in small numbers, may be introduced into the stomach with the food almost with impunity, traverse the intestinal tract, and be discharged in the stools without ever attaching themselves to the mucous membrane. Unfortunately, those entering the respiratory tract do not have such a ready means of exit.

Considering the susceptibility of the intestines in infancy, the fact that in sixty-three per cent. of these autopsies they were not involved at all, and that where intestinal lesions were present they were, with but few exceptions, slight, and that the marked cases were usually, I think in every instance, associated with extensive breaking down of a tuberculous pneumonia, the conclusion seems warranted that primary infection of the intestines in infants and young children is among the very rare occurrences in medicine, and that conditions exist in the alimentary tract, in consequence of which the bacilli do not gain a foothold unless they are introduced in very great numbers, as happens as a result of cavity-formation in the lungs.

Infection through the Respiratory Tract.—A study of the lesions of infantile tuberculosis, as shown in the table given in the beginning of this article, proves, it seems to me, conclusively, that infection almost invariably occurs through the respiratory tract. In ninety-nine per cent. the lungs were diseased, and in ninety-six per cent. the bronchial lymph-nodes. The mucous membranes of the respiratory tract in infancy and early childhood furnish conditions even more favorable for infection than those of adults. It is by breathing an atmosphere containing tubercle bacilli that most infants get the disease. The following example of direct transmission of the disease through the respiratory tract is cited by Reich,[5] and is one of the most striking illustrations on record of the ex-

treme susceptibility of infants to infection through this channel: In a town of about 1300 inhabitants the obstetric practice was divided between two midwives. Within fourteen months no less than ten infants, who had been delivered by one of these women, died of tuberculous meningitis. In none of these families was there a history of tuberculosis. This midwife was found to be suffering from pulmonary tuberculosis, and died from that disease. It was her custom to remove the mucus from the mouth of the newly born infants by direct mouth-to-mouth aspiration, and then to establish respiration by blowing into the nose. In the practice of the other midwife, who was healthy, no cases of tuberculosis occurred, although she treated the newly born infants in the same fashion.

The bacilli entering with the inspired air may be arrested either upon the mucous membrane of the upper or lower respiratory tract—in infancy usually the latter. They may induce disease in the walls of the finer bronchi, or may pass through to the lymph-nodes, where they may be for the time arrested. The lungs are affected in a large number of cases, probably in the majority, secondarily to the involvement of the lymph-nodes. Sometimes this takes place by direct extension, through contiguity; sometimes by the opening of a small bronchus or blood-vessel by ulceration, whereby the bacilli are rapidly disseminated through the lungs.

The important part played by the bronchial lymph-nodes in tuberculous infection of the lungs has been understood for some time. It was well brought out in an admirable paper by Northrup[4] in 1891.

It is not the purpose of this paper to show that there is no danger of tuberculosis through milk. I believe most strongly that all cows whose milk is used for food, whether for infants or older children, should pass the tuberculin test; and further, that when the milk-supply is from a doubtful source, milk should be heated to a sufficient degree—167° F.—to destroy such bacilli, should they be present. But when this source of danger has been entirely removed, I believe we will have accomplished very little in the prevention of tuberculosis.

Vastly more important is the enforcing of stringent rules regarding the isolation of persons with active tuberculosis, both in the home and the hospital, the careful destruction of the bacilli in the sputum from such cases, the disinfection of apartments after attacks, and most of all the early diagnosis of the disease in all persons who are brought into close contact with children, whether as nurses, teachers, or companions.

CONCLUSIONS.

1. Intra-uterine infection in cases of tuberculosis is very rare, the child often escaping even when the mother is suffering from active disease in an advanced form.

2. Infection through the alimentary tract is also very rare, and will not explain more than one or two per cent. of the cases.

3. The distribution of the lesions in tuberculosis of infancy and early childhood points conclusively to infection in the vast majority of cases through the respiratory tract.

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UTERINE FIBROIDS COMPLICATED BY PREGNANCY.[1]

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FOR many years careful obstetricians, consulting gynecologists, and general surgeons have witnessed the disappearance, in many instances, of uterine fibroids during the course of pregnancy; absorption has taken place beyond a doubt. Again, many have been the cases in which suppuration has occurred, and patients have died as a result of septic conditions, the source of which at the present time could have been reached and treated with success. There are, perhaps, few conditions that give the family physician so much anxiety as those of fibroid, in which the patient becomes pregnant. On the other hand, there is perhaps no class of cases that gives the abdominal surgeon so much cause for thought as the cases of fibroid in which there has been a marked reluctance on the part of the patient to submit to an operation, and yet in which there is sudden enlargement with suspicion of pregnancy, such as existed in the two cases I have to report. In these cases it was apparent to the patients and their friends that delay was not admissible, the chances for the patients' recovery resting entirely upon an early operation.

To-day we approach such conditions with a sense of assurance that they are amenable to surgical interference, and that the recovery of the mother is certain in a large percentage of cases. And yet text-books do not refer to these cases with quite that emphasis that the conditions seem to demand.

Davis, in his recently published work[2] says:

[1] Read at the Second Pan-American Medical Congress, held in the city of Mexico, November 16, 17, 18, and 19, 1896.

[2] "Treatise on Obstetrics," p. 28.

"Pregnancy may occur in a fibroid uterus, and in such a case a most careful examination is required to detect the fact. It will usually be necessary to examine the patient under an anesthetic, and to map out carefully, if possible, the condition complicating the pregnancy."

Courty[1] makes the following convincing statement:

"There is no doubt that the presence of myomata diminishes the number of conceptions and increases that of abortions and miscarriages. Whether the presence of the fibrous tumor prevents the free development of the uterus, or whether it determines hemorrhage, it often causes abortion. Delivery may be impossible; it is always difficult, dangerous, and complicated, and it exposes to troublesome consequences. According to Tarnier, out of 42 cases delivery only terminated spontaneously 8 times; it required the use of forceps 6 times, version 6 times, induction of premature labor once, embryotomy once, enucleation of the tumor once, and Cæsarean section 14 times; the malady caused death 5 times before delivery (of these 42 patients only 13 were cured)."

I also quote from Mann[2] as follows:

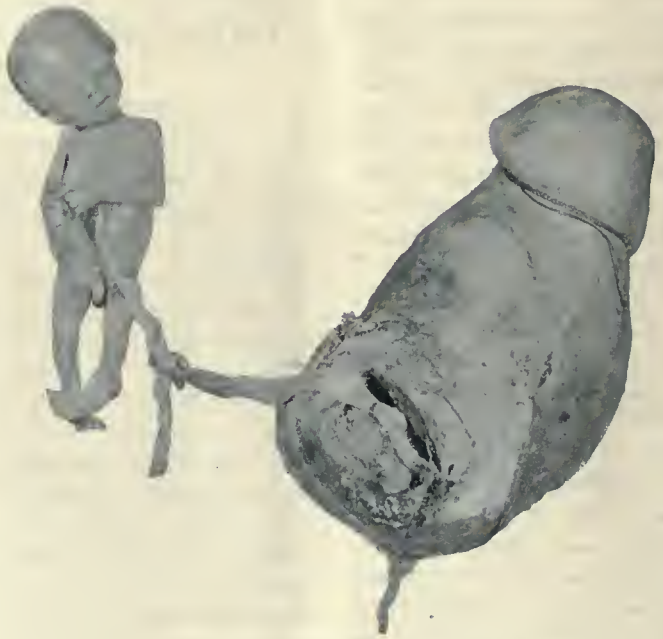
"Pregnancy and labor are occasionally complicated by the existence of fibromyomata. The preservation of the life of the mother may depend upon the removal of the growth, the induction of premature labor, or Cæsarean section. Dr. Jas. R. Chadwick has published in a paper read before the Massachusetts Medical Society, at its annual meeting in June, 1895, a report and summary of 10 cases of pregnancy and labor complicated by existing fibromyomata. Of these cases, 1 miscarried, 2 died, and 7 recovered; in all of the 7 cases of recovery, the tumors were subperitoneal. The question of surgical operation for removal of these tumors during pregnancy is not a very difficult one to solve. When the tumor is subperitoneal and pedunculated, pregnancy is not a barrier."

[1] "Diseases of the Uterus," p. 634.
[2] "American System of Gynecology," vol. ii, p. 590.

It is to be observed that the subperitoneal and pedunculated varieties give comparatively little trouble in cases of pregnancy, and this may be said of the pedicled or sessile subserous fibroma, as the following extract from Pozzi[1] confirms:

"Pregnancy gives a lively impetus to the development of fibrous tumors, and often causes their edematous softening. The treatment depends upon the nature of the symptoms, and the seat of the tumor. If it is a pedicled or sessile subserous fibroma of the fundus, we may hope that it will not interfere with the course of pregnancy. If there is danger of inflammation or the transformation of the tumor into a fibrocyst, there is also a hope that it will disappear during the uterine involution, and we may therefore pursue the expectant treatment. In the case of pelvic fibroids, however, delay seems more dangerous; if they cause no very serious symptoms we may wait in the hope that they may either precede the fetal head at the time of parturition, as has been observed, or else will ascend above the superior strait after the rupture of the membranes. Often the labor is accomplished only after a duration which results in a fatal exhaustion, if the woman does not die at once of the hemorrhage. These risks decidedly limit the advisability of the expectant method."

FIG. 1.



Case 1. Lower segment of uterus containing fetus, opened.

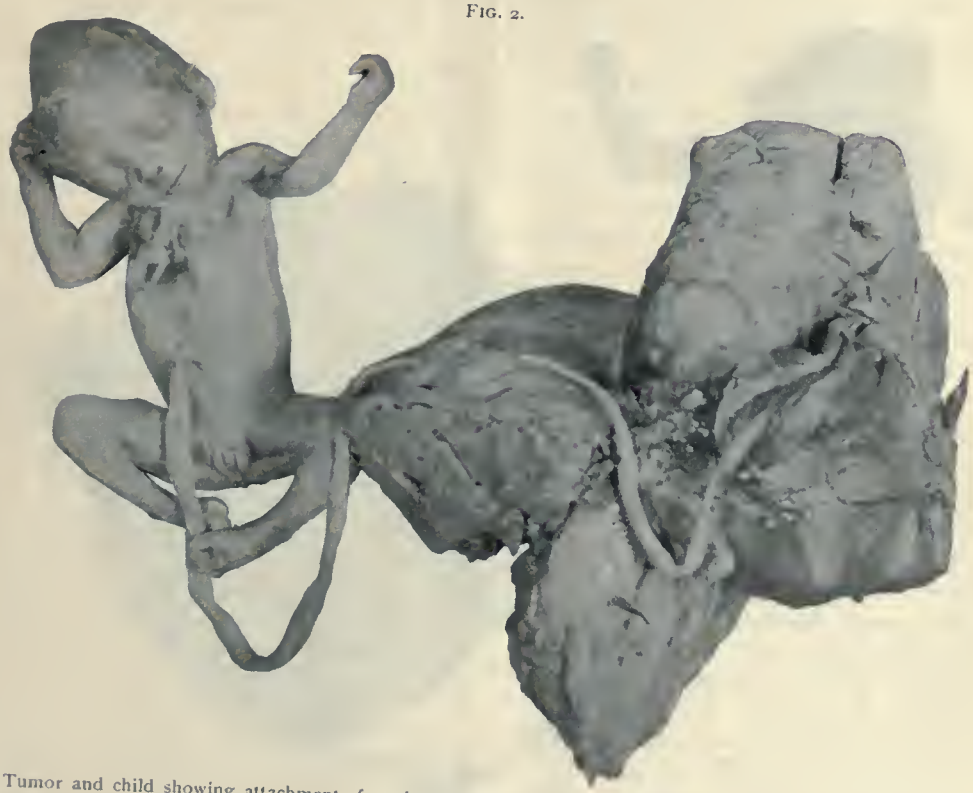
These few extracts illustrate the dangers that present themselves to the obstetrician in cases of fibroids that interfere with the cavity of the uterus, or obstruct the outlet of the uterus or pelvis. I am indebted to Dr. Rosenwasser of Cleveland for some statistics presented in a recent paper.[2] He says:

[1] "Medical and Surgical Gynecology," vol. i, p. 327.
[2] "Report of Three Cases of Uterine Fibroids Complicated by Pregnancy," by M. Rosenwasser, M.D.

"Of 228 cases of labor complicated by fibroids, collected by Güsserow,[1] more than one-half of the mothers and two-thirds of the children died. The assumption that many of these deaths may have been due to meddlesome interference on the part of the obstetrician is contradicted by Güsserow's[2] carefully compiled tables. Among 147 cases of labor, collected by him, 78 mothers died. Of the 61 mothers requiring manual or instrumental aid, 33 died. The remaining 45 deaths were therefore among the 86 cases not interfered with. The labors allowed to go to a natural termination were undoubtedly those in which there was the least hindrance to delivery, and yet they ended as fatally as did those subjected to delay, injury, and sepsis. In the more recent statistics, collected by Stately,[3] there are 597 cases in which no interference occurred before labor. Of these 220, or 37 per cent., died. This reduction in the mortality is owing to the improvement in technic within the last ten years. Among 307 cases reported as having aborted, the death-rate was 12 per cent."

It would seem, then, that surgical interference, either by myomectomy or by hysterectomy, is followed by more favorable results than is gathered from the statistics above quoted. The number of cases thus treated is, however, as yet insufficient to enable us to formulate any fixed rules for general guidance. Each case must be considered on its own merits, and must be managed in accordance with the best interests of the mother, and, where possible, also of the child. Whenever the location of the tumor is not likely to interfere with delivery, or its moderate rate of growth will admit of delay until after the viability of the child, a conservative course is clearly indicated. Myomectomy in the interests of the child is justifiable in cases in which dystocia would become a strong probability. At or near term in event of obstruction to delivery, suprapubic hysterectomy is probably the safest course. The loss of mothers ought not to exceed ten per cent.; the children ought nearly all to be saved.

FIG. 2.



Case 2. Tumor and child showing attachment of cord to lower segment of the uterus—the tumor extending into right lumbar region laid open.

Dührssen's proposition[1] to deliver the child by vaginal Cæsarean section, and then to preserve the uterus, or remove it as the nature of the case might indicate, has yet to be put to the test of experience.

The two following cases are good illustrations of uterine fibroids complicated by pregnancy as met with at times in our surgical practice, and bring out strongly the points to which I wish to refer; they emphasize the necessity of thorough operation in a certain class of patients. Delay, in the hope of absorption, or in the hope of delivering a living child, can scarcely be tolerated.

[1] "Cyclopedia of Obstetrics and Gynecology," vol. ix, p. 316.
[2] *Ibid.*, p. 314.
[3] *Johns Hopkins Hospital Bulletin*, March, 1894, p. 33.

[1] "Der vaginale Kaiserschnitt," Dührssen, Berlin, pp. 27–33.

CASE I.—Mrs. X. came under my observation in August, 1893, with a history of continuous and severe uterine hemorrhage during the two preceding months. Treatment was readily agreed to, and in October, 1893, I removed an intra-uterine polypus without trouble, and carefully curetted the cervix and cavity of the uterus. After this she became absolutely regular in her menstruation, and improved decidedly. At the time of operation I discovered that she had an interstitial fibroid connected with the anterior wall of the uterus. She had borne several children, and had had no miscarriages. She was then forty-five years of age. The case progressed so favorably that no further examination was made until January 24, 1895, when I was greatly surprised at the size of the abdomen, and found a hard mass in front, plainly the fibroid connected with the anterior wall of the uterus, which had increased very markedly in size. On the right side, and extending up into the right lumbar region, was an additional mass much larger than a child's head, which gave the feeling of fluctuation, and led to the supposition of its being an ovarian cyst. There was also to be felt deep down in the pelvis, by pressing the abdominal tumor well over to the right, a small mass that I believed to be the left ovary, and which fluctuated. She had had some trouble in getting her bowels to move, yet the constipation was relieved by proper laxatives. Her menstruation had ceased in September, 1894. She positively declared that she could not be pregnant, yet her husband felt there was a possibility of such being the case.

The patient's condition was such that it was not safe to wait longer before resorting to operative interference. The patient was becoming somewhat emaciated, pressure upon the stomach was interfering with digestion, and she was growing nervous and worried as to her condition. An eminent gynecologist saw her in consultation with me, and after two careful examinations announced that we had to deal with a uterine fibroid, with probably a double ovarian cyst, and that she could not be pregnant. There was an entire absence of any condition of the breasts indicating pregnancy, and at no time had she been nauseated. It is true that there was a slight port-wine discoloration to be noticed about the mucous membrane of the vagina, but the neck of the uterus could be distinctly made out, it was not dilated or softened in the least, and there was no discharge that gave us any strong impression of pregnancy.

FIG. 3.

Case 2. Same as Fig. 2. Showing the posterior view of the uterus—the tumor connected with the fundus laid open.

Operation was decided upon and performed March 18, 1895. I found on opening the abdomen a large uterine fibroid. The mass that extended up into the lumbar region was but a prolongation, and had commenced to soften, cystic degeneration taking place. The immediate steps in the operation were those of supravaginal hysterectomy, for what I believed to be a large fibrocystic growth. Each ovary

was about the size of a turkey's egg, and cystic in character. The lower segment of the uterus could be distinctly mapped out from the fibroid and its associate cystic degeneration, and on lifting the entire mass from the abdominal cavity, using the rubber tube for constriction, I did a complete supravaginal hysterectomy, making use of the Koeberle serreneud. As I removed the mass I realized that in making the section through the cervix, the incision had passed just below the membranes and amniotic fluid of a pregnant uterus. After proper care of the pedicle and closing of the abdominal incision, I found on examining the specimen a fetus of nearly four months' growth in connection with the fibroid tumor. There was nothing particularly eventful in the case afterward. The patient made an uninterrupted recovery, and has remained in the best of health since.

CASE II was quite impressive. Mrs. E. S., aged thirty-five, had been married a little more than a year, but had had no miscarriages during that time. I saw her April 1, 1896, in consultation with her family physician, Dr. Wm. H. Bailey. She had been in a state of perfect health for a period of twenty-two years; menstruation had been regular, never painful, and had begun at the age of thirteen. She believed herself to be pregnant, although for the past year she had menstruated at irregular intervals. She had made all her preparations for confinement, supposing herself to be near the time of delivery. Her physician had said frankly to her that if she were pregnant he believed she also had an abdominal tumor, yet she did not wish an examination, and declined it, being so firmly impressed with the belief that she was pregnant. When I saw her the abdomen was so tense that it was almost impossible to make out a correct condition of affairs. The left side of the abdomen presented a somewhat irregular, lobulated appearance, and felt exceedingly hard in certain places. The right side gave a more distinct appearance of an ovarian cyst. The patient had a pulse of 110, temperature ranging from 100° to 102° F., and she was vomiting quite constantly; there was some trouble in getting her bowels to move, and she was decidedly sick. I expressed my opinion that while there was a possibility of her being pregnant, I believed it was a case more particularly of uterine fibroid, possibly associated with ovarian cyst. Her breasts presented a negative condition as to pregnancy, and so did the neck of the uterus and the vagina.

An operation was decided upon and performed April 4, 1896. A large fibroid, multiple in character, was found, the details of the operation being almost precisely as in the previous case, a well-developed fetus of four months being present. The patient made a good recovery, the only marked symptom presenting in the after-condition being a decided delirium, that came on during the fourth day and continued nearly a week, which I attributed to her very anemic condition. Since the operation she has gained over twenty pounds in flesh, and presents a picture of health.

These two cases but a few years ago would have been beyond the reach of surgery. Such patients ought now to receive the prompt attention of the abdominal surgeon. It is possible that in some cases the living child, at full term, may be saved. There should be no hesitancy in removing the entire uterine appendages, although the tumor may be much smaller than in either one of the cases here reported. If left to themselves, and the attempt made to do a Cæsarean section, suppuration may follow and septic conditions result in the loss of the patient. I am most emphatic in my belief that in cases of uterine fibroid, with suspected pregnancy, a careful, thorough examination should be made, and if there is a doubt as to the possibility of delivering the patient at full term, an early radical operation should be done.

It will be noticed in these two cases that the fetus occupied the lower segment of the uterus, and yet neither patient gave symptoms of an approaching abortion, although Case 2 was rapidly reaching a fatal termination. It is true that neither one of these cases illustrates very positively the course we should pursue at a time when viability of the fetus presents. We may possibly, as we do sometimes in cases of retention of urine, change the position of the fibroid, particularly if it is not large, or if it is not growing rapidly, so as to relieve the pressure, and development may go on to full term, when the child can be delivered, the tumor being of such a character that contraction takes place, and the mother and child live; but we all know of, and have had experience with, the dangerous hemorrhage that results at such a time, in some of these cases; we know of the lamentable record of prolapsus of the cord, constriction of the thoracic viscera, rupture of the uterus, and local, and sometimes general, peritonitis, with all the complications of adhesions to the intestines and omentum, so that even though the child may be viable we must consider the advisability of recommending an operation at this time. Certainly, before viability is reached, we need not hesitate as to the course to be pursued, particularly when the evidence of constant enlargement of the tumor is present.

In the discussion of this subject it is my desire to emphasize somewhat the exclusion of the question of small tumors. It is only to the large ones, such as grow rapidly under the impetus of pregnancy, that I wish to call your attention. These cases left to themselves present a very high rate of mortality. They do not admit of myomectomy. A uterus with such large fibroids, and with cystic degeneration going on, will not admit of the patient going to full term; the condition demands prompt radical surgical interference.

GLAND-FEVER.

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Under this name—*Drüsenfieber*—a condition was first described by Pfeiffer[1] in 1889 which seems, clinically at least, to represent a new pathological entity. Its chief characteristic is a very considerable, and often painful, swelling of the cervical glands, accompanied by fever; an acute adenitis, which pursues a quite definite course, and always ends in resolution. Since Pfeiffer's first article further cases have been reported by Heubner, Starck,[2] Protassow,[3] Filatow, and Moussous.[4] Within certain limits all these reported cases appear to fit into the same frame: they bear a sufficiently strong resemblance to each other to justify their classification under the single term, "gland-fever," while, on the other hand, it would be very difficult to regard them as varieties of already recognized affections.

Having recently observed two, and possibly three, cases of this disease, I shall make a condensed *résumé* of them a basis for a brief statement of what is already known or surmised about this affection.

Case I.—Edna P., aged two years and six months, had always been a robust child, and was never ill. I was first called on April 6, 1896. The history stated that the child had not seemed quite well for a week, but there had been no complaint of the throat or of anything more than general malaise. On the day previous, April 5th, fever had been noticed for the first time, and also a swelling just beneath and behind the ears. I found the child up and about, but with flushed face, rapid pulse, and a rectal temperature of 103° F. On each side of the neck, the lymphatic glands along the posterior border of the sterno-cleido-mastoid muscle were markedly swollen. These enlargements extended from the mastoid process to the clavicle, but the swelling was much more marked just below the ears, as may be inferred from the fact that the neighbors had made a unanimous diagnosis of mumps. The glands were discrete, without redness, and not noticeably painful on pressure. There were marked anorexia and constipation. With the exception of a very considerable infection of the fauces, a careful examination, including chest, abdomen, and ears, was negative, and remained so throughout the entire course of the affection. There was no initial vomiting, no cough, no apparent headache, and no stiffness of the neck.

For seven days the afternoon temperature was constantly from 102° to 104° F., and the glands, after having increased somewhat during the first forty-eight hours of my observation, remained unchanged. Frequent examination of the fauces disclosed nothing beyond the redness seen at the first visit. The child was only moderately ill; in the morning it played about as usual, but in the afternoon it was inclined to be quiet and drowsy. The anorexia and constipation persisted.

On February 13th the temperature had fallen to normal. For some little time the child was unusually pale, but otherwise it seemed little reduced. Its general convalescence was rapid. There was no noticeable emaciation. The glands had already become smaller when the fever ceased, but for six weeks afterward they could still be felt. The child has since been in perfect health without a day's illness.

Case II.—Paul S., aged three years and four months, had never had any acute illness, but about six months ago had been operated upon for enlarged tonsils and adenoid growths.

This child was brought to my office with a history of fever and glandular swelling during the previous two or three days. For a week previous he had seemed to be in poor health, though nothing definite had been noticed. The present attack had begun with vomiting, which was followed by fever and the coincident appearance of swellings in the neck. The appetite was gone, the neck was painful, and the head was held slightly twisted toward the left. There was no cough, and no complaint had been made of the throat.

On physical examination it was noted that the child was unusually pale and seemed weak, although still able to walk about. The rectal temperature was over 102° F. The glands along the posterior border of the sterno-mastoid were found to be considerably swollen on both sides of the neck, the largest being about the size of a hickory-nut, and situated just below and behind the left auricle. The throat was slightly reddened, but with this exception the result of the examination was quite negative.

Having recently attended Case I, and feeling confident as to the probable diagnosis and outcome of the affection, I gave the child a preparation of iron, and told the parents to keep him confined to the house, and to report again in a few days. I did not see the child again until the 21st. The glands were still swollen, though not so much as before. I was informed that the fever had continued steadily since the 9th, and the rectal temperature was found to be still several degrees above normal. The boy had not been confined to bed, but there had been complete anorexia, considerable emaciation, and much general debility.

He was again brought to me on the 24th with the statement that he seemed better in every way, and had begun to eat. The glands were still moderately enlarged, but the temperature was now normal after a continuous elevation for about two weeks. From this time on there was steady improvement, and in the course of a few weeks the glandular enlargement had entirely disappeared. The mother tells me, however, that convalescence was slow, and that it was many weeks before the child had wholly regained its original color, strength, and weight.

A third observation belongs, I believe, in the same

[1] *Arch. für Kinderheilk.*, *Bd.* xxix, *Heft* 3 and 4.
[2] *Ibid.*, *Bd.* xxxi, *Heft* 4.
[3] *Ibid.*, *Bd.* xxxi, *Heft* 4.
[4] *Jour. des Mal. de l'Enfance*, June, 1893.

category, although but few data can be given, and much doubt is permissible as to the diagnosis.

CASE III.—Ludlow F., aged two years, had been ill and under the care of a homeopathic physician for two or three weeks before I saw him. I could obtain a history only of irregular fever, much general weakness and depression, soreness and stiffness of the neck, and enlarged glands. He had always been a remarkably strong and vigorous child. I found the glands much swollen, precisely like those in the cases above reported, except that the tumefaction was much more pronounced upon the left. It should be added, however, that this child rapidly developed typhoid, while within a week after my first visit the glandular swelling had nearly disappeared. I am inclined to think that in this case an attack of genuine gland-fever was followed by typhoid; as to what relation could possibly exist between the two I am unable to conjecture.

The *etiology* of gland-fever is a study for the future. Undoubtedly the disease is infectious, and Pfeiffer says it is likely to affect several members of the same family, though no such tendency was seen in my few cases. Starck believes in the etiological importance of constipation, with resulting production of toxins. This theory does not accord with the comparative infrequency of the affection, nor with the fact that the cervical glands are always the earliest involved. In the majority of cases there has been some faucial congestion, and everything would seem to suggest this region as the probable seat of invasion. Age is evidently an important factor: the disease seems to be peculiar to the first decade, and all of my own cases were in patients under four years of age.

The only constant and characteristic *symptoms* of this affection are an acute and usually painful swelling of the cervical glands, together with a very considerable fever of from eight to fourteen days' duration. Anorexia and marked constitutional depression, with slow convalescence, are the rule. As frequent concomitants, are to be mentioned initial vomiting, a moderate congestion of the fauces, and obstinate constipation.

The glandular swelling is usually bilateral, although there is very frequently a marked predominance on one side. The glands involved are chiefly those along the posterior border of the sterno-mastoid muscle. In each of my own three cases the enlargement was especially marked just behind and below the lobe of the ear, so as to form a prominence quite noticeable on simple inspection. These swellings show no tendency to confluence, but remain throughout as separate, firm, and sharply circumscribed tumefactions of the individual glands. They also show little or no tendency to phlegmon or suppuration; they are, however, usually tender on pressure, and evidently sensitive to movements of the neck, as shown by the usual stiff carriage of the head and the occasional torticollis. The duration of the swelling is somewhat variable, but it rarely subsides with the fever, and from four to six weeks will probably elapse before the glands have wholly returned to their normal size.

Besides the superficial cervical glands, the occipital, submaxillary, and the sublingual, may also be enlarged, though they are rarely painful. Moussous[1] has observed two cases where the adenopathy had evidently extended into the thorax; enlargement of the tracheobronchial glands was manifested by slight dulness in the interscapular fossæ behind, and especially by a severe paroxysmal cough resembling that of pertussis. In each of these two cases deglutition was painful, and even the simple movements of mastication seemed to produce painful sensations in the swollen glands. As a rule, the adenitis seems to be limited to the neck, the glands of the axilla and groin being invariably spared.

The development of fever is frequently preceded by a prodromal stage of malaise and slight impairment of the general health, which may have lasted a week. Coincidently with the appearance of glandular swelling there is an abrupt rise of temperature to 102°–104° F. An initial attack of nausea and vomiting, as in scarlet fever, is a common occurrence; and although no complaint may be made of the throat, it will often be found on inspection to be red, and, perhaps, slightly swollen. The fever continues uninterruptedly for from eight to fourteen days: characterized by marked morning remissions, it discloses this type in the behavior of the child, who, comparatively bright and playful in the morning, becomes in the afternoon listless and apathetic. Headache is often complained of, the tongue is thickly coated, and in many cases an obstinate constipation persists throughout the whole course of the disease.

With the subsidence of the fever, which in the majority of cases is by lysis, there is an immediate improvement in appetite and general condition. At the same time it will be found, as a rule, that the child presents a degree of pallor, and a loss of flesh and strength quite out of proportion to the apparently mild character of the disease. In this respect one is reminded of influenza, and it is usually many weeks before the full measure of strength and vigor has been regained.

The *diagnosis* of gland-fever could rarely present any difficulties. The swelling is unlike that of diphtheria; it is most prominent high up near the auricle, instead of at the angle of the jaw. Still less easily could it be confounded with any of the more common forms of glandular enlargement, such as the

[1] *Loc. cit.*

scrofulous or the sympathetic. Scarlatina anginosa, with its tendency to the production of phlegmonous and suppurative inflammations of the anterior cervical regions, need hardly be considered. The difficulty of speech and stiffness of the neck might in a very young child suggest the possibility of retropharyngeal abscess, but such doubt would soon be resolved by digital examination. In short, it must be very easy in the great majority of cases quickly to reach the conclusion that this form of acute febrile adenitis is a primary and independent affection.

As to *prognosis*, these cases have hitherto invariably recovered, and it would seem as if danger could scarcely arise, except possibly in the event of tracheobronchial involvement.

No *treatment* other than purely symptomatic has as yet been suggested. My own two cases were treated by the local inunction of an iodin ointment (Iodi puri gr. iss, Potass. Iodidi gr. xv, Vaseline ʒ iiss) and the internal administration of iron. In many cases cod-liver oil and a short visit to the mountains or seashore would undoubtedly hasten convalescence.

COCAIN-ANESTHESIA.

By JOHN A. WYETH, M.D.,
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Of the four or five hundred practitioners who each year attend the clinical course at the New York Polyclinic Medical School and Hospital, and witness demonstrations of cocain-anesthesia in the department of surgery, fully eight out of ten express surprise at the results, and frankly acknowledge that they cannot obtain such satisfactory anesthesia without using a quantity of cocain so large as to produce unpleasant and, at times, dangerous constitutional poisoning. The response to this acknowledgment is usually a diagram of the anatomy of the integument, explaining, first, that there is a great difference in the thickness of the skin in various parts of the body, it being from one twenty-fourth of an inch to even more than this in some parts, as in the palms of the hands and soles of the feet, while in other portions it is as thin as $\frac{1}{240}$ of an inch. Second, the diagram shows that the knob-like swellings or varicosities of the sensory nerve-fibrils *terminate in the cells of the Malpighian layer*, and the fact is thus demonstrated that the cocain should be injected into this layer, where the smallest quantity will produce the widest anesthesia. To throw a solution of cocain into the deeper corium or into the subcutaneous areolar tissue is a waste of material and time, and involves a certain amount of danger, especially if the solution is injected into the areolar spaces. Under these circumstances, it is merely an accident if a sensory nerve is caught in the injected area, and the operator is certain to throw the cocain into rich plexuses of blood-vessels, where it is rapidly absorbed and carried into the general circulation. In the Malpighian layer there is such a network of sensory end-organs that they are sure to come in contact with the cocain solution and be immediately paralyzed as to their conductivity.

In portions of the body such as the walls of the abdomen or the back, where the circulation cannot be temporarily arrested or impeded by the application of an elastic bandage, I proceed as follows: The area of the operative field is thoroughly cleansed after the well-known aseptic practice. I see that the syringe and needle have been boiled, and that they are perfectly clean. I use the all-metal syringe invented by Dr. Dennis, and the finest kind of a needle. The needle is carried obliquely through the epidermis until the point is in the Malpighian layer, just beneath the epidermis. Arriving at this point, I force out (and it takes considerable pressure to accomplish this) a measured, or, after much practice, an estimated half-minim of the four-per-cent. solution. This produces a little sense of smarting, which passes off almost as instantaneously as it appears. The epidermis and skin affected by this small quantity of cocain turn white at once, and immediately, with the needle still in position, with a sharp-pointed knife I make an incision from one-quarter to one-half of an inch in length, always as far as the anesthesia has spread. The needle is then inserted one-quarter of an inch from the first point, and another half-minim or one minim of the solution is forced out at the same level, and the incision extended. It is evident that, with from two to four minims of the solution, an incision one inch long may be made through the skin and corium into the subcutaneous areolar tissue. There can be no danger of cocain-poisoning by this method for any ordinary incision three or four or five inches long, because a large proportion of the injected solution escapes from the wound with the bleeding which follows the incision. The insertion of tenacula will enable the operator to dissect from one-half to three-quarters of an inch on either side of this incision. If it now becomes necessary, and this is not always the case, on account of the lack of sensation in the subcutaneous tissues, a weaker solution may now be used to great advantage, but it should be remembered that any solution thrown into this areolar tissue is apt to be absorbed.

In practically all cases for cutting through the skin I prefer a four-per-cent. solution of cocain, made in a saturated solution of boracic acid, in order to prevent the development of microörganisms

or septic fungi. My method is to use the Schleich *strong* solution, No. 1, which contains only 3 grains of cocain muriate to 3⅝ ounces of distilled water or saturated solution of boracic acid for the subcutaneous tissues. At times the *normal* solution will produce a perfectly satisfactory subcutaneous anesthesia, and six or eight drams may be used if necessary. The following are the Schleich solutions:

NO. 1, STRONG.

℞ Cocain muriate . . 0.2 (gr. iij)
Morphin muriate . . 0.025 (gr. ⅜)
Soda chlorid . . 0.2 (gr. iij)
Sterilized dist. water, or saturated solution of boracic acid, q. s. to 100 c.cm. (fl. ℥ 3⅜)

NO. 2, NORMAL.

℞ Cocain muriate . . 0.1 (gr. iss)
Morphin muriate . . 0.025 (gr. ⅜)
Soda chlorid . . 0.2 (gr. iij)
Sterilized dist. water, or saturated solution of boracic acid, q. s. to 100 c.cm. (fl. ℥ 3⅜)

NO. 3, WEAK.

℞ Cocain muriate . . 0.01 (gr. ⅙)
Morphin muriate . . 0.025 (gr. ⅜)
Soda chlorid . . 0.2 (gr. iij)
Sterilized dist. water, or saturated solution of boracic acid, q. s. to 100 c.cm. (fl. ℥ 3⅜)

In operating upon an extremity where the circulation can be retarded or controlled, in many instances I use the two-per-cent. solution after incising the skin, because I can control the introduction of the solution into the circulation. I have found that, after having operated on an extremity, when the tourniquet is loosened and the flow of blood reëstablished, a dangerous amount of cocain may be suddenly carried to the heart, and with a serious effect. Therefore I loosen the tourniquet for a period of three or four seconds, then readjust it for several minutes, and repeat this procedure. In this way I let in such a small quantity of cocain at one time that it is distributed over a wide area and produces no bad effect.

At a recent clinic I removed an inflamed and very sensitive papilloma from the sole of the foot (one of the most sensitive parts of the body). I applied the Esmarch bandage in figure-of-eight fashion around the dorsum and sole of the foot and the lower leg, not shutting off, but retarding the circulation. I then carried the point of the needle directly into the center of the papillomatous mass, injecting one minim of the four-per-cent. solution. There was a sharp, stinging pain from the puncture of the needle and presence of the solution, which passed away in ten seconds, leaving the part completely anesthetized. The injection was repeated in the proposed line of incision, using, in all, four minims of the solution, and an incision an inch long and half an inch from the center on each side was made, the neoplasm cut away deeply, and four silk sutures introduced without the slightest appreciation of pain.

CLINICAL LECTURE.

EXOPHTHALMIC GOITER; CHRONIC TONSILLITIS; CARCINOMA OF THE TONSIL; CHRONIC ENDOCARDITIS.[1]

BY E. FLETCHER INGALS, M.D.,
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CASE I. This patient, a woman of twenty-six years, complains of palpitation of the heart and smothering sensations, dating from early childhood. The attacks of palpitation are occasionally followed by unconsciousness for a few moments. She is short of breath, more or less, all the time, and has a little disturbance of the stomach occasionally. When eight years of age she was confined to bed about three weeks with rheumatism. Two years ago she first noted a little enlargement of the right side of the neck, beneath the sterno-cleido-mastoid muscle, just above the clavicle. The growth is movable beneath the skin, and is lifted upward when she swallows. The pulse is 119. Her complexion is a trifle livid; she says it is somewhat darker than formerly.

Observing the eyes carefully, you will see about an eighth of an inch of the sclerotic above the lower lid when she is looking straight forward. Two symptoms in this case are quite distinct, *viz.*, enlargement of the thyroid and palpitation of the heart; and if the eyes have become prominent, as I think is the case, we have a third symptom of a group which is diagnostic of exophthalmic goiter. She is extremely nervous, and this is another symptom of this disease. The heart and lungs are normal, except that the heart is a little irritable. The prognosis of exophthalmic goiter is always doubtful, and the treatment is generally unsatisfactory. However, we may hope for some reduction in the size of the thyroid by remedies administered internally and by means of hypodermic injections. I would recommend as the most satisfactory internal treatment tincture of strophanthus, beginning with 5 minims three times a day, and increasing the dose gradually to 10 minims. I have seen three cases do well under this treatment, and as the majority of patients do not even get better, it is well worth a trial. Professor Brower has seen some remarkable results from this drug. Injections of from 15 to 30 minims of a five-per-cent. solution of carbolic acid in water may also be used at intervals of a few days. In giving the injections, make sure that the needle has penetrated the gland by having the patient swallow after it has been inserted, whereby it will be sure to move with the thyroid. The direction of the needle may be changed without completely withdrawing it, so as to deposit a few drops of the solution in two

[1] Clinical Lecture held at Rush Medical College, Chicago, October, 1896.

or three different parts of the gland. Large doses injected in this way cause dizziness, and the amount should be limited so as to avoid undue discomfort.

CASE II.—This woman, twenty-seven years of age, has very little enlargement of the tonsils, but has had tonsillitis a number of times during the last two years. The glands are so small that it is impracticable to remove them with the tonsillotome. Such tonsils I have sometimes seized with vulsellum forceps and drawn into the tonsillotome for excision, but in several cases protracted hemorrhage has followed this operation, and I therefore prefer cauterization. A few applications will reduce such a gland to half this size, and with this reduction we are likely to get rid of the tendency to recurring inflammation. In cauterizing the tonsil, I use an electrode with platinum point, about half an inch in length, the current being regulated to heat it red in about a second. I press the full length of this point into the tonsil and make two or three cauterizations at each sitting. Where the gland is quite small, I cauterize without reference to the follicles, but where it is larger, the platinum point should be introduced into the follicles and moved about so as to completely destroy them. After cauterization the patient will use a gargle of a dram and a half of carbolic acid to a pint of water, hourly.

CASE III.—This man is a mechanic, sixty-seven years of age, who has been a smoker since his twentieth year. Up to the last five years he was also a heavy drinker. Nine weeks ago he began to have trouble with the throat, which he at first thought was due to a cold. It has not been severely painful, but feels sore, and he has occasional pains shooting up back of the ear. The pharynx is congested, the uvula is lengthened a quarter of an inch, and there is an ulceration with cauliflower-granulations extending over quite a large part of the left side of the palate and left tonsil, nearly an inch and a half in diameter. The only conditions likely to occasion chronic ulceration of the tonsil are tuberculosis, syphilis, and malignant disease. In tubercular ulceration we do not find cauliflower-granulations, there is usually not much redness or induration, and in the deep ulcerations, which are rare, the edges are pretty cleanly cut, though sometimes they are irregular. The superficial ulcerations have very irregular edges, and numerous smaller ulcers are usually found along the borders a short distance from the main ulcer. In tertiary syphilitic ulceration there is a sharp-cut border, the ulcer is gouged out, or the edge is undermined, but not everted. There is also a good deal of destruction of tissue, with considerable induration about it. In this affection we also expect to find other evidences of syphilis in the throat, and there are likely to be some enlarged glands in the neck. The pain may be slight or very severe. We may, therefore, exclude in this case both tuberculosis and syphilis. This disease is doubtless carcinoma of the tonsil, and it is spreading rapidly. There is less pain than usual, but it is increasing.

The prognosis is extremely unfavorable, and the treatment is absolutely unsatisfactory. He asks if I can help him without removing the growth. It is doubtful whether any operation will be of benefit, as complete removal is out of the question. Under the circumstances, I should be in favor of cauterizing with lactic acid, from fifty per cent. to full strength, as often as the patient will tolerate it. These patients are sometimes benefited for a time by the internal use of potassium iodid and arsenic, therefore these will also be ordered.

CASE IV.—This boy, seventeen years of age, says he cannot sleep more than two or three hours out of the twenty-four, and complains of getting out of breath on exertion. There is no cough, and the skin is pallid, cold, and moist. The pulse is 124 per minute, and so small I can hardly tell whether it is regular or not. Observe the puffy appearance of the face, particularly beneath the eyes, and notice that the lips are slightly blue. The feet and legs are swollen, and pit on pressure. Three years ago, rheumatism confined him to bed for a month and to the house most of the time for a year. Occasionally rheumatic pains have annoyed him since that time. From the appearance of the face and the lividity of the lips alone, we might almost conclude that the boy is suffering from some heart-affection. You will observe some bulging of the precordial region. Pulsation of the heart may be seen three inches to the left of the normal limit. The impulse of the heart is not strong, like the pulsation of hypertrophy, and a tremor is felt upon placing the hand over the apex. A distinct murmur is heard at the apex during contraction of the ventricles, and this is also heard to the left of the apex, but not above it. This murmur is systolic, and must be produced at the mitral valves.

The diagnosis is chronic endocarditis or valvular disease of the heart. The heart is dilated and the compensation poor. His treatment will consist of the administration of tincture of digitalis, minims 7½, three times a day after meals, and of tincture ferri chlorid, minims 10, ten minutes before meals.

CLINICAL MEMORANDUM.

INTUSSUSCEPTION IN A CHILD SEVEN MONTHS OLD; HIGH INJECTIONS; RECOVERY.

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THE mother of this patient dropped into the office of her family physician, Dr. L. K. Neff, during his one-to-two o'clock office hours, to arrange for vaccinating the baby. So far as the mother knew, or the doctor observed, there was nothing amiss with the child. At three o'clock the baby went to sleep, awakening at five o'clock with a cry. "It had the colic," so it was said, and for that was given fennel tea, and brandy and water. After these doses the child vomited several times. The physician was called, arriving at six o'clock P.M., an hour after the first cry.

He at once examined the abdomen and discovered a sausage-shaped tumor lying along the margin of the liver.

No food was given that night, but the baby vomited twice. The bowels did not move.

On the following forenoon I found, with Dr. Neff, the same sausage-shaped tumor in the right hypochondrium. It was easily felt, and was three inches by three-fourths of an inch in size. The tumor began deep in the right flank, the left extremity being at about the median line. It was possible to explore the deep extremity with the end of the finger, and to feel a sharp shoulder.

The child tolerated examination very well; it lay in a stupor, relaxed as though under an anesthetic. No amount of manipulation caused change of countenance. The abdomen was flabby; the "sausage" could be mapped out, rolled about, and picked up between the thumb and fingers. Physical examination otherwise disclosed no abnormality; no digital exploration of the rectum seemed indicated, and, on account of the age of the child, none was made.

The diagnosis of intussusception was agreed upon. As yet there had been no passage from the bowels later than two normal movements, in the morning, before the occurrence of the first symptoms. The vomiting at first followed the giving of fennel tea and brandy, though it may be added it also occurred twice in the night. The symptoms thus far were two—pain and tumor. There was also a notable pallor, and a notable relaxation, though these are not urged as characteristic of the obstruction.

The plan of procedure agreed upon was first to find the nature of the colon-contents in order to fix the diagnosis. An enema of simple warm water was to be given; if this brought away characteristic passages, then high injections were to be given to undo the obstruction, if possible. In case of failure of the latter there remained only abdominal section. Another hour had not elapsed before the telephone rang, and Dr. Neff announced that he had scarcely begun giving the enema when blood freely escaped from the rectum. For diagnosis nothing further was required. In two hours the patient was in the operating-theater of the Presbyterian Hospital. Present: Drs. McCosh, officiating surgeon; Briddon, Thornley, Hawkes, Northrup; the family physician, Dr. Neff, Dr. O'Dwyer, and other guests.

Gentle irrigation brought away free blood. High injection was practised with water at a temperature of 110° F. and a pressure of five feet; a soft catheter was passed three to five inches within the sphincter, no effort being made to pass it further. The hips were elevated, and the buttocks compressed about the rectal tube. No anesthetic was required; the baby continued drowsy, relaxed, pale, and seemingly already anesthetic. As the water slowly crept from the splenic flexure toward the sausage-shaped tumor, accumulating behind the constriction, it formed a tumor to the right of the median line—a tumor easily felt and seen. This tumor, while under observation, the pressure continuing, traveled slowly to the right, and under the hand seemed all at once, with a gurgle, to flatten out and disappear. The condition of the child remained unchanged. No further evidence of tumor being present, the child was returned to the medical ward for further observation.

On examination at nine o'clock the same evening, after the water had been absorbed and the abdomen had become collapsed, there seemed to be a tumor, smaller, in the same location. It was believed that the intussusception either had not been entirely reduced in the first place, the presence of so much water having obscured the condition, or that the intussusception had returned. At 10.30 P.M., eight and one-half hours after the first injection, the child was allowed to nurse. About this time blood and mucus appeared in two passages.

On the morning of the next day the baby was again nursed; it immediately vomited. At 11.45 A.M. it passed bloody mucus, and more mucus passed during the afternoon. Condition remained the same; child mentally a little brighter. Evidences of tumor were doubtful. There was a suggestion of tumor to the feel; if a tumor, it was not as it originally presented itself. The child nursed every three hours. During this day the temperature was 99½–100° F. rectal; pulse most of the time, 124–128.

On the second day in the hospital, the general condition was less favorable; abdomen was rigid. The child was somewhat disturbed, and stupor, relaxation, and pallor were more marked; temperature reached 103° F.; pulse, 142. This was forty-eight hours from the first appearance of symptoms. Indications for prompt relief were pronounced. Dr. McCosh supervising, injections were administered as before, under continuous, prolonged, gentle pressure. Again a cutting operation was meditated if injection did not promptly relieve. The condition of the child at this moment brought out the opinion from some present that injections were unsafe, and that abdominal section offered better promise. The medical men present favored the view of Dr. McCosh, that injections, conducted with the cautions observed in the former attempt at reduction, were justifiable and preferable.

The second injection left the abdomen as before, full of water, with no definite evidence of the condition of the intussusception. The pressure was rather less than five feet, and was held rather longer than the first; till, in fact, the entire abdomen was apparently filled. The child was now allowed absolute quiet for six hours. At the expiration of this time the surgeons and physicians were again to meet and consider the necessity of an immediate abdominal section—in case the second injection failed.

At the appointed hour the meeting took place in the operating-room. So little confidence had we in the second injection undoing the tight obstruction after the failure of the first, that we did not go to the medical ward, but sent for the nurse and child. The nurse appeared, but without the baby, and reported. Her report was embodied in the contents of a napkin—a movement from the bowels containing, beside mucus, much good normal fecal matter—evidence that the intussusception was reduced.

That night the baby slept well and nursed at regular intervals, and in the morning was sent home with its mother, cured. It has remained perfectly well ever since—now six months.

MEDICAL PROGRESS.

Attenuation of Experimental Tuberculosis by the Roentgen Rays.—LORTET and GENOUD (*Lyon Médicale*, 1896, No. 26, p. 305) have recorded a series of observations that go to show that the Röntgen rays are capable of modifying experimental tuberculosis. Eight guinea-pigs in good health and of about the same age were inoculated with bouillon containing a triturate of the spleen of another guinea-pig, manifestly tuberculous. Three were exposed to the Röntgen rays for at least an hour daily for nearly two months, while the remainder were used for control-purposes. In the former the inguinal glands were enlarged, indurated, and circumscribed, while in the latter softening of the glands had taken place, with suppuration and spontaneous evacuation. However incomplete the experiment, it seems to justify the exposure of tuberculous processes to the Röntgen rays, and for purposes of observation some form of superficial tuberculosis would seem most appropriate for the experiment.

Successful Total Ovariectomy During Pregnancy.—At a recent meeting of the Académie de Médecine MOUCHET (*Semaine Médicale*, 1896, No. 31, p. 243) reported the case of a young woman from whom both ovaries were removed during the third month of pregnancy. One of the organs was cystic and the other sclerotic. The pregnancy pursued its usual course without interruption, and terminated normally in the birth of a living child. The puerperium also was unattended with complication.

Traumatic Paralysis of the Radial Nerve Relieved by Stretching.—At a recent meeting of the Académie de Médecine MOUCHET (*Semaine Médicale*, 1896, No. 31, p. 243) reported the case of an alcoholic, forty-eight years old, who in consequence of a fall suffered from paralysis of the radial nerve. After the condition had existed for two months, extension of the paralyzed nerve was practised, and on the following day sensibility had returned to the previously anesthetic parts. Gradually motor power also returned to the paralyzed member, and in the course of ten days recovery was complete.

THERAPEUTIC NOTES.

The Treatment of Whooping-cough with Ichthyol.—MAESTRO (*Semaine Médicale*, 1896, No. 38, p. 304) reports the results secured in a small number of cases of whooping-cough heated with ichthyol. The drug was administered in pill-form in progressively increasing doses. According to the age of the patient, from ¼ grain to 3 grains were thus administered daily, the dose being rapidly augmented to 9 or 15 grains in the twenty-four hours. At times with the internal administration was conjoined the use of inhalations of a three-per-cent. solution of ichthyol in glycerin. In the cases thus treated the symptoms rapidly subsided and recovery speedily followed. The drug was well borne, and no bad effects upon the kidneys or the general state were observed.

An Improved Stomach-tube.—SALOMON advocates (*Berl. klin. Wochenschr.*, 1896, p. 693) the use of a stomach-tube, which, besides the customary opening, has nine openings in the sides. The long axes of these are directed away from the tip of the tube, similar to those of a nozzle for vaginal use. The advantage claimed is the more thorough washing of the walls of the stomach by reason of the direct impact of the water.

Further Uses of Formaldehyde.—From Berlin (*Deutsche med. Wochenschr.*, 1896, Nos. 39 and 40) comes the statement by ROSENBERG that he has used formaldehyde in a new solution with gratifying results. The best-known solution so far is a forty-per-cent. watery one, known as formalin. Opperman used a sixty-per-cent. solution in methyl-alcohol, which he called halzin. Rosenberg has experimented with the latter solution in combination with a small quantity of menthol, to do away with its irritating properties. This fluid he called holzinol, and when he allowed it to evaporate slowly from a small apparatus, he obtained a perfect sterilization of the air and all objects in the room without injury. Even food was rendered absolutely free from germs by it. It had a favorable influence upon whooping-cough in all stages. When used in a solution as weak as 1–100,000 it prevents the development of bacteria, and a solution of a strength of 1–75,000 is germicidal.

Formaldehyde was farther given internally in a solution of milk-sugar (called sterisol). Examination of the urine shows that it is taken up by the blood, and is separated from it by the kidneys so slowly that its germicidal action in transit must be considerable.

Iodin Injections in Hydrocephalus.—RANKE (*Jahrb. f. Kinderheilk.*, Bd. 39, S. 359) describes a case of hydrocephalus treated by iodin-injections. The patient was a child ten months old. The left ventricle was punctured, and 320 c.cm. of serum were let out. After this 10 grams of tincture of iodin, diluted with 20 grams of water, were injected into the left lateral ventricle. There was a slight febrile reaction. Within two and a half weeks after the operation a noticeable diminution in the size of the head was observed. About four weeks after the treatment the patient succumbed to a fatal enteritis.

The autopsy revealed an adhesive inflammation of the walls of the ventricle into which the injection was made, with a resulting diminution in the size of its cavity.

Vomiting of Pregnancy Controlled by Orexinum Basicum.—RECH records in the *Centr. f. Gyn.*, 1896, No. 33, an instance of the value of orexinum basicum in the vomiting of pregnancy. The patient, a primipara, aged twenty-three years, vomited so badly from the beginning of pregnancy that by the middle of the fourth month she weighed 88 lbs. instead of 104, and various remedies and nutritive enemata were tried in vain. Rech gave her 5-grain doses of orexinum basicum three times daily for three days. After the third powder the vomiting ceased, and in four days the patient had gained enough strength to leave her bed.

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SATURDAY, DECEMBER 12, 1896.

THE CHICAGO DIPLOMA-MILL IN A NEW GUISE.

THE Chicago institution for the sale of medical diplomas, known as the Illinois Health University, to which we recently called attention, being unable to withstand the notoriety given to it, has thrown off the name under which it suffered castigation, and has adopted the more businesslike title of "Independent Medical College." Under this new guise, it essays to show its teeth and claws, and e'en to alarm the timid by the loudness of its roar. It boldly announces in a circular-letter from its president that a Constitutional Liberty League is being organized to protect the worthy purchasers of its diplomas, and to resist all interference on the part of boards of health and licensing boards. But the nature of the beast under this lion's skin is all too apparent by the quality of its voice, as well as the length of its ears, and its threatening tones are readily recognized as the brayings characteristic of its ill-disguised nature. To give volume to its wild rantings, and with the possible hope of projecting its voice to the remotest confines of ignorance and moral indirection, with the assumption of its new title it simultaneously exploits a journal called *The Medical Liberty News*, devoted to the advancement of "the cause." The first number of this new accession to journalism—a penny monstrosity, consisting of two pages of letterpress, each 5 x 9 inches, and two illustrations—is ludicrous to a degree. The venom that lurks within appears in the form of an adroit attack on vaccination, serum-therapy, and animal experimentation, undertaken, no doubt, with the hope of enlisting the sympathies of the antivivisectionists and inducing them to join hands with the Liberty League. It has yet to be proven, however, that possession of an obsession on the part of the antivivisectionists is inimical to mental integrity on every other point, and therein lies the hope that this last effort may prove futile.

It is becoming more and more evident that the rapid change of front by this guerillalike institution is proving too much for the Illinois State Board of Health, as well as the active opposition of our energetic contemporary, the *Journal of the American Medical Association*. We shall be glad to tender our assistance in whatever direction it may prove most effective.

AN UNPAID DEBT WE OWE OUR PROFESSIONAL BROTHERS.

"EVERY age confutes old errors and begets new," says the proverb. We are prone to rail at and pity the self-satisfied ignorance of our predecessors, and naturally imagine our own scientific acquirements solid bone and muscle, never reflecting that some, not remote, successor with his trocar of advanced science will find our boasted brawn to be only wind.

This general pneumatosis with its inevitable cerebral emphysema, blinding us to all except others' faults, is deadly to exact science and real progress Our art is the sum of written and traditional experience. As "he is lifeless that is faultless," some of our experience consists of mistakes and failures. These, when acknowledged, are, however, more instructive than successes; but where are we to turn to find writers publishing, or lecturers telling of, their errors in diagnosis, prognosis, or treatment? There are noteworthy examples, but they are few. Some years since a distinguished Philadelphia physician and surgeon had a series of articles in the MEDICAL NEWS describing his mistakes and failures, and rarely could anything be

found so instructive. Likewise, eight or ten years ago, the *Medical Press and Circular* (Eng.) had a series of letters from a "Professional Failure" which, although half humorous and anonymous, were of great value. Such communications should not be anonymous, but manly confessions of error. If, guided by the teaching or experience of others, we fail of success, is it not our duty, as members of a liberal and benevolent profession, to tell our failures, lest others, unwittingly, make the same mistakes? Experience is the best teacher, but a score of lives should not be sacrificed to demonstrate the worthlessness of some new therapeutic or surgical suggestion.

If experimenters would rush into print with failures as they do with successes, how much delay, alas! too often a fatal delay, in reaching wise conclusions would be saved, as well as unnecessary human suffering? Our medical journals bristle with marvelous cures and brilliant surgery. How seldom does the pathologist get his innings to tell the honest sequel! The majority of cases are reported prematurely. Let us not be so greedy of first laurels which may prove to be foul weeds of error, but, after sufficient time has proven our experience successful or faulty, let us make a clean breast of all and win thereby the admiration and gratitude of others, saved from what has proved to us to be unknown pitfalls.

The good Book says: "He that covereth his sins shall not prosper, but who confesses and forsakes them shall have mercy," and, we might add parenthetically, the respect and confidence of his fellows. The duty thus outlined will require fortitude and a sublime humility, but will bring to the performer of that duty the great reward of an unselfish act—peace of mind.

THE SO-CALLED ACCIDENTAL CUTANEOUS RASHES.

Attention has from time to time been called to the fact that, in many instances, physicians are misled into making a diagnosis of skin diseases by the appearance upon the skin of eruptions which are in reality due to the effect of drugs, but which are thought to be due to the presence of some true skin lesion. So frequently is this mistake made that within the last few months a prominent dermatologist has said that quite a large proportion of the cases of skin lesions which he sees in consultation with other physicians is traceable to the drugs that the patient has been taking for the cure of some other ailment. It is not the intention at this time, however, to call attention to those lesions which are, perhaps, most commonly produced by such drugs as quinin, potassium iodid, and the various derivations of coal-tar that are so popular in medicine at the present time, but rather to speak of the accidental rashes that are sometimes seen upon the skin as early symptoms—aberrant manifestations, or post-eruptive manifestations, of some of the diseases which are characterized by changes in the cuticle. It is a well-known fact that in addition to the characteristic eruptions of the various infectious fevers, we frequently find developed upon the skin other eruptions which are by no means types of those which would naturally be expected to appear. Thus in the early stages of smallpox it is not rare to find that certain portions of the patient's body are covered by an eruption which so distinctly resembles that of measles that it is only by the exercise of extraordinary caution that a false diagnosis is not made; and, under the name of Grisolle's sign, it has been stated that the only way to separate this measleslike eruption of smallpox from the true eruption of measles is by stretching the skin between the fingers, when, if the disease be measles, no papule can be felt under the part that is tense, whereas, if it is smallpox, the papule can be distinctly felt.

Again, it is a noteworthy fact that very frequently there develops after vaccination a roseolous eruption or erythema which misleads the physician into a diagnosis of scarlet fever, or of some mild attack of a dermatitis, and even in typhoid fever the rose-rash may be so widely distributed as to closely resemble that of measles in its general outline. Rarely, too, a similar roseolous rash follows an attack of smallpox, and in many of these instances it has been noted that the fever of sepsis in this disease has been unusually severe.

The writer's attention has been called particularly to this subject, not only by a recent study which he has made of it, but more recently by a very valuable paper in Simeon Snell's *Quarterly Medical Journal*, for October, 1896, in which Meredith Richards records his experience with accidental rashes occurring in the course of exanthemata. The value of his paper can be judged to some extent by the fact that

nearly all the instances of accidental rash which he records have been noted by himself—in nearly 8000 cases of infectious disease which he has had under his care during the last four years, while Medical Officer of Health in Chesterfield. In addition to the scarlatiniform rash preceding smallpox, which we have already noted, he calls attention to the fact that petechiæ may be associated with this rash, and, in addition, in some cases a petechial rash breaks out in the groins and axilla before the general variolous eruptive process. In other instances a general purpura asserts itself, and finally an urticaria-like papular erythema, general in its distribution, is sometimes seen. Because of these accidental rashes sometimes preceding smallpox, Richards emphasizes the importance of delay in reaching a diagnosis, particularly during an epidemic of this disease, and states that he has met with about one dozen cases in which the presence of a scarlatiniform urticaria has led to a diagnosis of scarlet fever, when a careful inspection of the throat, or a few hours' delay, would have shown that the case was really one of smallpox. He also states that in addition to the general erythema following smallpox, which we have mentioned, he has noticed a gyrate form of impetigo contagiosa, in which the smallpox-pustules, instead of drying up on the eleventh day, spread peripherally and presented lesions closely resembling those of the skin-diseases we have named. This eruption is frequently attended by high temperature and other evidences of septicemia, and Richards believes that it is due to a mixed infection, as it has a tendency to occur in particular wards, and may be accidentally acquired by attendants. Richards also points out that even in such mild diseases as varicella or chicken-pox, a diffuse scarlatinous rash may appear, which will gravely mislead the physician; and often in enteric fever the so-called scarlatinous rash will be so like that of measles as to give rise to the diagnosis of measles or typhus.

In regard to scarlet fever, he maintains that a dark red macular erythema, which first appears on the limbs about the extensor surfaces of the joints, may spread to the trunk or to the face, and develop after the disease has been a number of days in existence. It would seem probable from his observations that this skin lesion occurs most frequently in those patients who have severe ulcerating sore throat in addition to the scarlet fever, and when this rash appears, as it usually does, during the third week, he regards it as of grave prognostic import. He believes, however, that the violent septic sore throat will nearly always render a diagnosis easy.

These accidental rashes are, however, not limited merely to the condition which Richards has described. They are seen in connection with many affections of the blood, particularly those associated with sepsis; and the so-called "surgical scarlet fever" is practically, in the vast majority of cases, nothing but a skin manifestation of a septic condition of the blood. In these cases, too, one of the most valuable points in differential diagnosis is the absence of sore throat in the septic cases; for, as we know, in true scarlet fever a sore throat is a very constant symptom, the inflammation being of the character that once seen it is always afterward recognized. Then, too, we must remember that it is possible for persons suffering from what are apparently the early stages of the ordinary eruptive fevers, to be in reality the victims of syphilitic infection in the febrile stage, and because of the early stage of their disease, are covered by a roseolous eruption. In every case in which this occurs, particularly if the patient be an adult, the initial lesion should be sought for before making a diagnosis of one of the ordinary eruptive fevers.

Serious mistakes are so frequently made in the diagnosis of the eruptive diseases of both children and adults by otherwise careful physicians, that too much attention cannot be paid to this subject.

SECONDARY PUERPERAL HEMORRHAGE.

Severe bleeding is sometimes seen sufficiently long after labor to justify the use of the term "secondary" in describing it. It is always a serious matter, and especially so with private patients in whom it occurs after the physician has left the case, supposing that danger of hemorrhage is past. It was one of the themes for discussion at the last meeting of the British Medical Association, where it was considered at length by the leading obstetricians of Great Britain.

Routh, in a paper upon the subject, said that he had found this bleeding "concealed," or "external"; in the former instance, the cervix was closed by a clot which prevented the escape of blood; in the latter, blood flowed freely from the vagina. He had

found sudden relaxation of the uterus, from nervous shock, to be the principal cause. Next in order of frequency was the partial separation of a piece of retained placenta, or sudden loosening of thrombi from the uterine sinuses, by exertion, or by the action of ergot. This was observed in cases where ergot was given before the birth of the child, and where irregular contraction of the uterus and retention of clots followed. Byers had seen a case where distended bladder seemed to be the cause of the bleeding. Donald had seen hemorrhage follow the absorption of retained fecal matter as late as the eighth or ninth day after labor; others had met with this bleeding as late as the end of the first week, accompanying a backward displacement of the uterus.

The writer has observed such cases in young, ill-developed women who were anemic and who had frequently suffered from exhaustion caused by hard work before delivery. Depressing emotion was undoubtedly a powerful factor also in these cases. Malaria has been present in some.

Secondary hemorrhage comes on suddenly with little, if any, warning. Sometimes considerable mental agitation precedes it, but frequently the first intimation which the nurse has is the flow of blood, or the weakened aspect of the patient. If the hemorrhage is not concealed, the flow is copious and bright in many cases; in others, it begins gradually, is dark in color, and persists until syncope results. The uterus is relaxed and soft, sometimes distended with clots, and often displaced backward in the abdomen. If bleeding occurs as late as the end of the first week, the uterus may be found in the hollow of the sacrum. On palpating the abdomen, the hard outline of the organ is lacking, and in severe cases it cannot be felt.

The prevention of such bleeding lies in the thorough study of each pregnant patient. Where such a woman is evidently ill nourished, her blood should be examined, and iron or arsenic, or the peptomanganate of iron should be given as indicated by the blood-count. Where pregnant women become anemic from toxemia, the eliminative organs must be stimulated to act properly. Where insufficient nourishment is the cause of the trouble, proper food must be procured for those who are needy, and the diet of others must be properly regulated. The depressing influences of lack of fresh air, hard work, and exhausting anxiety must be removed as far as possible.

During labor, the obstetrician must keep in mind the danger of uterine relaxation which follows prolonged labor, and which accompanies the improper use of certain uterine stimulants. Should the mechanism of labor be at fault, he must correct this without delay; should an insurmountable obstacle to delivery be present by reason of disproportion between the fetus and the pelvis, he must detect this before exhaustion supervenes. In prolonged labor, the mother's strength must be conserved by proper nourishment and the use of appropriate tonics, anesthetics, and anodynes. Clinical experience proves without doubt that the giving of ergot during labor predisposes to secondary hemorrhage. If uterine contraction is deficient, it is best stimulated by a general tonic such as quinin, or a moderate amount of alcohol, and uterine force is best supplemented by manual pressure, or traction by forceps. Ergot produces excessive muscular contraction ending in relaxation, and strychnia brings about a tetanic condition of the uterine muscle which ultimately terminates in exhaustion. Contrary to what is often stated, sudden emptying of the uterus does not necessarily predispose to bleeding; in Cæsarean delivery, the child is suddenly removed, yet serious bleeding rarely follows unless the patient has been exhausted before the operation.

Haste in expressing the placenta is a common cause of secondary bleeding. So long as the patient does not bleed, the placenta may be left within the uterus from twenty minutes to half an hour with positive advantage. It will gradually become separated and ready for expulsion. Should it be necessary to deliver the placenta, Crédé's method is unquestionably best and safest. Where the hand must be introduced, the placenta should be removed very gradually, and the inner surface of the womb thoroughly examined by touch to be sure that no portion of the after-birth remains.

After labor, when birth has been exhausting and delayed, uterine relaxation and secondary bleeding should be feared, even if the patient does well immediately after labor. Following delivery, the uterus should be well douched with hot sterile water, and moderately tamponed with sterile or antiseptic gauze. The vagina may also be filled with antiseptic gauze, but not to the degree of over-distention. The uterus should be anteverted and, if possible, anteflexed by the hand of the physician, the fundus being carried

above the promontory of the sacrum, and bent strongly forward. It should be retained in this position by the hand of the doctor or nurse until it ceases to relax, and remains well contracted. When such is the case, the abdominal binder, or many-tailed flannel binder, used after abdominal section, should be applied from above downward, making firm pressure upon the uterus. Three towels may be rolled firmly, and one placed above the fundus, and one on each side of the womb beneath the tightly pinned binder; this is more efficient than a simple pad, but if bleeding is feared, the binder should not be applied, but the womb should be watched by the hand of the nurse or doctor. After the womb is empty, strychnia and ergot are indicated in cases where labor has been prolonged. Care should be taken that these remedies are used for the first thirty-six or forty-eight hours after delivery, and not simply in one or two large doses; the better way is to give $\frac{1}{40}$ of a grain of strychnia and 20 drops of ergot every six hours for a day and a half, or two days. Rectal injections of whisky, well diluted with warm water, serve well in these cases. In nervous and frightened women, opium is an important aid in preventing secondary bleeding; in the form of codeia, given by hypodermic injection, it allays fear and anxiety, and thereby prevents nervous exhaustion; in doses of $\frac{1}{4}$ to $\frac{1}{2}$ of a grain, it serves a most useful purpose.

In the presence of secondary hemorrhage, vigorous treatment is demanded. The uterus should be grasped and kneaded, and a douche of hot sterile water promptly given. Upon the physician's arrival, he should at once explore the uterus with the aseptic hand, and remove any large clot or loosened bit of placenta which may be within. An intra-uterine douche of hot sterile water should accompany this manipulation. When the womb is clean and empty, it should be tamponed with aseptic gauze, and carried into proper position, the fundus just above the brim of the pelvis, and directed strongly forward. Strychnia, given by injection, and ergot, by the mouth, will usually complete the treatment. The uterus must be watched by the hand until it is evident that relaxation will not occur. For the anemia which follows severe secondary bleeding, the injection of normal saline solution under the skin is clearly demanded; from a half pint to a pint should be given as soon as possible, and this may be supplemented by injections of warm water and whisky in the rectum, thus securing the rapid absorption of considerable water. The writer recently saw a case in a young anemic girl in which secondary bleeding came on suddenly, twenty hours after delivery, after the patient had dropped asleep; it was promptly checked, only to recur twenty-four hours later. In each instance it yielded promptly to uterine massage and the hot douche, without further treatment; the patient ultimately made a good, although prolonged, recovery from gestation.

Edward P. Davis, M.D.

ECHOES AND NEWS.

Colored Physicians Organize.—The colored physicians of South Carolina have formed a State organization.

Resignation.—Dr. Egbert H. Grandin has resigned the assistant editorship of the *Medico-Surgical Bulletin.*

Spread of the Plague in India.—The bubonic plague is still spreading in Bombay, and is now attacking Europeans, two of whom have died.

A Collection of Brains.—Dr. Luys of the Salpetrière Hospital, Paris, has presented the Faculty of Medicine with his collection of 2200 brains.

Antitoxin in Louisiana.—The Louisiana State Board of Health has announced that it will supply antitoxin free of charge to poor diphtheritic patients.

Starvation in India.—The mortality from famine in the Belapur and Belaghal districts is steadily increasing. Hundreds of persons have died from starvation in the Gonda district.

Dr. Jameson Released from Jail.—On the evening of December 2d, Dr. Jameson was removed from Holloway Jail in an ambulance. He was taken to a private sanitarium in one of the suburbs of London.

Huckleberry-wine.—Wine made from huckleberries is now sold in large quantities in Austria and Germany. It is cheap, and Professor Pettenkofer, a hygienic authority, says it is much better than the average table-wine made of grapes.

A New Hospital Building.—The Morristown, N. J., Memorial Hospital will apply a donation of $38,000 to the erection of a building on its grounds. This, it is hoped, will be the central portion of a larger hospital to be built in three sections.

To Lengthen the German Curriculum.—To stem the overcrowded condition of the profession in Germany, it is proposed to add a sixth year to the medical student's curriculum. This is to be spent in practice in hospitals or specially recognized clinics.

The Responsibilities of Druggists.—The Supreme Court of North Carolina has decided that where a druggist sells

opium to a woman whose husband has warned him not to do so, and the use of the drug affects the woman's health, the druggist is liable for damages.

Resolutions.—The Medical Board and Board of Directors of the Manhattan Eye and Ear Hospital, New York City, have adopted resolutions expressive of their high appreciation of the services of the late Dr. Frank W. Ring, as executive surgeon of the hospital, and sorrow at the loss the institution has sustained in his untimely death.

Mr. Tesla on the X-ray.—Regarding some sensational reports that have found their way into newspapers recently, in which it was stated that blind eyes were made to see through the mysterious agency of the Röntgen-ray, Mr. Tesla very properly considers them groundless. He further deplores the cruelty of raising such vain hopes in the minds of the unfortunate.

State Charities.—The annual meeting of the New York Charities' Aid Association was held December 4th. Stereoptical views of the institutions in the Department of Public Charities of New York were exhibited. The secretary stated that contracts were signed in November for the construction of new buildings in both the Department of Charities and that of Correction. Dr. Frederick Peterson submitted a report on the Craig Colony for Epileptics.

St. Christopher's Hospital for Babies.—The St. Christopher Hospital for Babies was opened in Brooklyn December 1st. No child suffering with a contagious disease can be received, but all others, sick and destitute, will be taken to the full capacity of the hospital. The consulting staff consists of Dr. A. J. C. Skene, Dr. Charles Jewett, Dr. Wm. Madden, Dr. Wm. Browning. The visiting pediatrists are Dr. Wm. A. Northridge and Dr. John W. Parrish.

Hospital Boards Selected.—In pursuance of the recent revision of the lunacy law by the Legislature requiring the reorganization of the Boards of Managers of the several State Hospitals for the Insane, Governor Morton reappointed the then existing boards for the Manhattan and the Long Island State Hospitals, including two women for each board. The Governor appointed new boards for the Hudson River and Utica State Hospitals, following out his policy of having women representatives in each management.

Burns Caused by the X-ray.—A case is reported from Chicago in which the back of the patient was seriously burned in an endeavor to locate a bullet in his back by the X-ray. This is one of many reported cases of burn produced in this way. Such wounds heal more slowly than ordinary burns. Nikola Tesla states that these effects are not due directly to the rays, or Röntgen streams, but to the ozone generated by the rays in contact with the skin. He recommends a coating of oil on the skin as a preventive measure.

Sees His Own Heart Beat.—The report comes from Indiana, that a boy, aged fifteen, while rabbit shooting November 14th, accidentally shot himself in the left breast. Parts of the second and third ribs were carried away, and an opening three inches in diameter was made in the chest wall. Through this the lung and heart were plainly seen. The surgeons in attendance used a silver plate to close the opening, wiring it to his ribs and covering its edges with skin grafts. Before the operation a mirror was placed in position so the boy could see his own heart beat.

New York Police Ambulances.—At their next meeting the Police Commissioners of New York City will consider the suggestion of adding an ambulance to the equipment of every police station. This can only be regarded as an evolution from the service of the present patrol-wagons. The number of police surgeons must be increased accordingly, so that each station shall have one constantly within easy call. The ambulance service rendered by the hospitals is sometimes inadequate to meet the demands, and is often taxed unjustly in the removal of persons not properly requiring their attention.

The Congress of Leprologists.—There will be held at Berlin in October, 1897, a conference of a very limited number of renowned leprologists and delegates of the different governments to discuss the slow but sure increase of leprosy and the measures to oppose this plague. The conference was fixed for the month of March, 1897, but the scientific expedition of Professor Robert Koch to South Africa (for the British government) has necessitated a delay of the date. The members of the organizing committee are Messrs. Armauer Hansen (Bergen in Norway), Robert Koch and O. Lassar (Berlin), and Edward Ehlers (Copenhagen), as secretary.

A Crime Against Humanity.—Judge Gordon of Philadelphia, with the able assistance of Drs. Weir Mitchell, Morton, and Mills, is now conducting an investigation of the practice of unlawfully (?) detaining insane persons in the Eastern Penitentiary of Pennsylvania. It has already developed that there are quite a number of these unfortunate cases, and it is stated publicly by Judge Gordon that there is an element in the administration of this institution which tends to promote insanity among its inmates. He also believes that for certain reasons those in charge are indisposed to give these facts publicity or assist in the removal of these prisoners to more suitable environments. It is disgraceful negligence on the part of any State, especially one maintaining such advanced ideas of statutory justice and philanthropy as does Pennsylvania, to be without separate provisions for the care of insane criminals.

The Courage of President Kruger.—Poultney Bigelow, in *Harper's Monthly*, narrates instances of almost incredible courage on the part of Paul Krüger. The Transvaal President was shooting one day when his gun exploded and blew away part of his left thumb. The surgeon to whom Krüger finally submitted the case, found that the flesh had begun to mortify, and advised amputating the arm at the elbow. Krüger demurred, nor would he permit the alternative suggestion of having the hand cut off. The surgeon refused to deal further with the case. Krüger thereupon laid the thumb upon a stone and cut off a por-

tion of the affected part. The wound still refusing to heal he cut away all the flesh about and above the second joint of the thumb, and this time the flesh healed and his hand was spared. On another occasion when suffering from toothache, he forced the tooth out of his jaw with a penknife.

Lying-in Hospital Society.—The annual report of the Society of the Lying-in Hospital, New York, has just been issued, giving in detail the work for the year ending October 1, 1896. During the past two years 3423 applicants for relief have applied at the hospital and substation, and 2768 of these attended in confinement, an increase of fourty-four per cent. over the corresponding period a year ago. The society cares for the great bulk of its patients in their own homes, removing to the hospital building only cases requiring the most careful watching and treatment. In relief and treatment of those who applied for aid, scattered throughout the tenement districts in the lower part of the city, more than 37,800 visits were required. During the year 341 students have received certificates. Nurses from St. Vincent's Hospital in this city, St. Joseph's in Yonkers, and St. Mary's in Brooklyn, to the number of fifty-five, have been carefully trained.

Examples of Longevity.—The London *Standard* remarks that longevity, like the dew of heaven, comes to every class. Kings who live in luxury, beggars who go through existence in a state of chronic cold and hunger, giants and cripples, abstainers and drunkards, large eaters and small eaters, toilers and sluggards, brain-workers and body-workers, vegetarians and carnivora, smokers and non-smokers, sane and insane—all have apparently an equal chance of the prize of long life. Among a host of others one gentleman of 127 years, a grandson of the famous Thomas Parr, attributes his length of days to extreme temperance and regular exercise. And Mrs. Judith Bannister, who died at Cowes in her 108th year, lived on apples, biscuit, and milk and water for the last sixty years of her life; while a man named Confit of Burythorpe achieved the wonderful span of a century and a half through moderate eating, great exercise, and gulping down a raw egg once a day. An Earl of Huntingdon contrived to celebrate one hundred birthdays. He took care to eat oysters at every meal. Roasted turnip for supper every night in the year formed the elixir that carried Mr. Wilson of Sussex through 116 years. And Mr. Elkins of Combe lived a century by feeding, during the latter two-fifths of it, on bread, milk, and turnip-tops. Mrs. McCarthy of Cork breakfasted at seven, dined at one, and supped at half-past six. This she declared was the secret of her long life. She died aged 103 years. But Philip Laroque, a Gascony butcher, was drunk twice every week for eighty years, and yet lived to be 102, while a Kerry man, named McCarthy, drank rum and whisky as we take tea and coffee. If he was ever tempted to descend to claret or ale, he drank, immediately afterward, an equal quantity of poteen, "as a wedge," he said. He kept doing this for 111 years. Smoking heavily was the practice that kept Mrs. Robinson, a Scotch woman, going for 106 years. May it be that those who attain longevity do so not through adherence to hygienic principles, but through a mystic property of the blood-serum?

SPECIAL ARTICLE.

THE USE OF ANTITOXIC SERUM IN THE TREATMENT OF DIPHTHERIA UNDER THE SUPERVISION OF THE NEW YORK CITY HEALTH DEPARTMENT, WITH A RESUME OF THE PUBLISHED REPORTS ON THIS SUBJECT.

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ON January 1, 1895, the New York City Health Department commenced the use of the diphtheria antitoxin prepared in the bacteriological laboratories. For about six weeks after this date, however, the serum at command was limited in amount and was not of a satisfactory strength. The supply of foreign preparations of antitoxin at this time was very small; only a few vials could be obtained under any conditions, and the prices charged were exorbitant, averaging about 80 cents per 100 antitoxin units (Behring's standard), or from $8 to $12 a dose. The price of similar preparations now, as furnished by the Health Department, is from 75 cents to $1.50, or 10 cents per 100 units.

The serum prepared in the laboratories of the Health Department was first employed in the hospitals, but as soon as a sufficient quantity was at hand, arrangements were made for its administration without charge, on the request of the attending physician, by inspectors detailed for this purpose, in any case of diphtheria occurring in the city. During the period ending October 1, 1896, 1352 cases regarded as diphtheria were treated in their homes by inspectors of the department at the request of the attending physicians, and 1207 persons (excluding inmates of public institutions), who had been exposed to diphtheria, were immunized by the administration of antitoxin. Altogether, more than 3000 injections of antitoxin have been administered and about 6000 visits made. This duty has been mainly performed by Medical Inspectors Drs. H. F. Koester, W. E. Studdiford, J. S. Ennis, L. K. Graves and W. J. Pulley.

The cases referred to above do not include any of those treated in the various institutions of the city, and were, as a rule, among the very poorest classes in the tenement-house districts. They have, generally speaking, been in the most unfavorable surroundings; have been severe cases, or regarded by the physicians in attendance as hopeless cases, and have usually come under observation rather late in the course of the disease. In some of the later cases, however, the reverse of this may be said,

TABLE I.—CASES OF DIPHTHERIA TREATED WITH ANTITOXIN BY THE HEALTH DEPARTMENT, JANUARY 1, 1895, TO OCTOBER 1, 1896.

Total cases of true Diphtheria injected with Antitoxin by the Medical Inspectors of the Health Department, showing the number of cases injected, and the mortality percentage, prognosis at time of injection, extent of membrane in the throat, complications, and number of injections given:

	Cases.	Deaths.	Mortality, per cent.	Prognosis.			Extent of Membrane.				Complications.[3]				Number of Injections Given.					Total Injections Given.	Number of Antitoxin Units Injected.
				Good.	Fair.	Bad.	Tonsils	and Pharynx	and Nose.[1]	Larynx.[2]	Broncho-pneumonia.	Nephritis.	Sepsis.	Paralysis.	1	2	3	4	5		
January 1, 1895, to April 1, 1896.....	856	154	17.9	148	261	447	170	280	145	261	8	35	136	7	559	230	60	8	0	1231	600 to 2500
April 1, 1896, to October 1, 1896.....	396	44	11.1	120	148	128	114	91	97	94	8	5	66	6	234	122	32	8	1	611	600 to 3000
Totals.....	1252	198	15.8	268	409	575	284	371	242	355	16	40	202	13	793	352	92	16	1	1842	600 to 3000
Moribund cases, or those dying within 24 hrs., deducted..	80	....	....	....	....	....	....	....	....	....	..	..	....	..	....	....	..	..	..	....	.....
There remain....	1172	118	10.	....	....	....	....	....	....	....	..	..	....	..	....	....	..	..	..	....	.....

NOTES TO TABLE I.—From January 1, 1895, to April 1, 1896, there were treated 856 cases, with 154 deaths, giving a mortality of 17.9 per cent. Of these 65 were moribund at the time or died within twenty-four hours after injection; deducting these, the mortality was 11.2 per cent. From April 1 to October 1, 1896, there were treated 396 cases, with 44 deaths, or a mortality of 11.1 per cent. Of these 15 were moribund, or died within twenty-four hours after injection, and deducting these, the mortality for the last six months was 7.6 per cent. The total mortality from January 1, 1895, to October 1, 1896 (1252 cases and 198 deaths), was 15.8 per cent.; deducting the moribund, it was 10 per cent.

[1] In the nasal cases the pharynx and tonsils were also involved, as a rule.

[2] The larynx involved, with or without the pharynx and nose.

[3] Only the common and more important complications of diphtheria are noted here, and these notes are incomplete. Many other complications occurred (notably scarlet fever), and acted as contributory or determining causes of death. These fatal cases are all included.

TABLE II.—CASES OF LARYNGEAL DIPHTHERIA TREATED WITH ANTITOXIN BY THE HEALTH DEPARTMENT, JANUARY 1, 1895, TO OCTOBER 1, 1896.

Total cases of Laryngeal Diphtheria injected with Antitoxin by the Medical Inspectors of the Health Department, showing the number of cases injected, and the cases, deaths, and mortality percentage in both operative and non-operative cases:

	Total Laryngeal Cases.			Non-operative Cases.			Operative Cases (Intubation).		
	Cases.	Deaths.	Mortality, per cent.	Cases.	Deaths.	Mortality, per cent.	Cases.	Deaths.	Mortality, per cent.
January 1, 1895, to April 1, 1896.	261	87	33.3	197	58	29.4	64	29	45.3
April 1, 1896, to October 1, 1896..	94	21	22.2	86	21	25.5	8	0	0.
Totals.....	355	108	30.4	283	79	27.9	72	29	40.2
Moribund, or dying within 24 hours, deducted.....	38	...	...	34	..	....	4	..	....
There remain.....	317	70	22.	249	45	17.9	68	25	36.7

NOTES ON TABLE II.—From January 1, 1895, to April 1, 1896, there were 261 laryngeal cases injected, resulting in 87 deaths, or a mortality of 33.3 per cent. Of these, 25 were moribund at the time, or died within twenty-four hours after injection, and deducting these, the mortality was 26.2 per cent. Of the 64 cases intubated, resulting in 20 deaths, or a mortality of 45.3 per cent., 4 were moribund at the time; deducting these, the mortality of operated cases was 41.6 per cent.; 197 cases, resulting in 58 deaths, were not operated upon, and of these the mortality was 29.4 per cent.; deducting 21 moribund at the time, or dying within twenty-four hours after injection, the mortality for non-operative cases was 21 per cent. From April 1 to October 1, 1896, there were 94 laryngeal cases injected, resulting in 21 deaths, or a mortality of 22.2 per cent.; of these, 13 were moribund, or died within twenty-four hours after injection, deducting which would give a mortality of 11.1 per cent. Of the 8 cases intubated, none died. There were 86 cases not operated on, resulting in 21 deaths, or a mortality of 25.5 per cent.; deducting the 13 moribund cases, or those dying within twenty-four hours, the mortality was only 9.8 per cent. According to the reports of the inspectors, many more of the laryngeal cases might have been saved by earlier treatment and intubation. The total mortality of laryngeal cases from January 1, 1895, to October 1, 1896 (355 cases and 108 deaths), was 30.4 per cent.; deducting the moribund, it was 22 per cent.

as physicians who had seen the effects of antitoxin on the course of diphtheria, and had thus been convinced of its value, not infrequently referred comparatively mild cases for treatment at an early period of the disease. It will be noted by reference to the accompanying tables that, during the first year of this work, up to April 1, 1896, about eight per cent. of the cases treated were moribund when first seen by the inspectors, while in the last six months the percentage has been reduced to about one-half of this number. In a large proportion of the whole number there was practically no other treatment beside the administration of antitoxin. In some cases strychnia, whisky, and other remedies were also given. In many instances the physician in attendance discontinued his visits, after referring the case to the Health Department for the administration of antitoxin, as the family was unable to pay for his attendance.

There has been from the beginning a continuous and marked improvement in the results obtained, in consequence, it is believed, of increased experience in the use of this agent, the earlier application of the treatment, the constant improvement in the character of the serum, and the larger dosage employed. During the first year (see table No. 1) the mortality was seventeen and nine-tenths per cent., while during the last six months the mortality was only eleven and one-tenth per cent.

For the execution of the plan adopted for the free administration of antitoxin among the poor the city was divided into districts, each district being placed in the charge of an inspector, who is always on duty and liable to call at any hour during the day or night. The requests for the administration of antitoxin are received at the offices of the Health Department, and immediately referred by police telegram, or by telephone, to the inspector in charge of the district in which the case occurs. In some instances during the last months, where several cases have been treated by the same physician, they have been referred by him directly to the inspector, in order that valuable time might thus be saved.

There were treated up to October 1st, all included, 1352 cases regarded as diphtheria. Of these 100 cases showed later on bacteriological examination no Loeffler bacilli—were considered as false diphtheria and excluded from the statistics; or were found to be true diphtheria, were later transferred to the Willard Parker Hospital, and thus passed from observation of the inspector; or the treatment was discontinued from some other cause. There remain 1252 cases, of which 1054 recovered, and 198 died, the mortality being $15\frac{8}{10}$ per cent. Of the whole number, 856 were treated previous to April 1, 1896, and among these the mortality was $17\frac{9}{10}$ per cent. Three hundred and ninety-six were treated during the period between April 1st and October 1st, and among these the mortality was $11\frac{1}{10}$ per cent. While the difference in the results may be in part due to the season of the year, yet this does not satisfactorily account for the whole difference in mortality, as reference to the monthly mortality curve of the whole city will show that there was not a corresponding reduction in the general mortality during the latter months.

Of the 1252 cases, 80 were moribund at the time of the first injection, or died within twenty-four hours after it. These may be properly excluded in a consideration of the utility of antitoxic serum in the treatment of diphtheria. There remain 1172 cases with 118 deaths, or a mortality of ten per cent. Five hundred and seventy-four, or nearly one-half of the whole number, were reported by the inspectors to be in a bad condition and suffering from very severe or septic diphtheria at the time of the first injection, and 268, or about twenty-one per cent., were reported as in good condition, or as apparently affected with a mild form of the disease, when first seen. In 355, or more than twenty-eight per cent. of the whole number, the larynx, with or without the pharynx, tonsils, and nares, was involved. In 242 cases, in addition to the pharynx and tonsils, the nares were involved. One hundred and eight deaths occurred among the 355 laryngeal cases, giving a mortality of $30\frac{4}{10}$ per cent. Seventy-two of the laryngeal cases were intubated, in some instances by the inspectors, and in some by the attending physicians, and of these 29 died, or $40\frac{2}{10}$ per cent. In 283 laryngeal cases there was no operative interference and in these the mortality was $27\frac{9}{10}$ per cent. Of the fatal laryngeal cases, 38 were moribund at the time of the first injection or died within twenty-four hours after it. If these be excluded, there remain 317 cases with 70 deaths, or a mortality of twenty-two per cent. Other data as to the mortality in operative and non-operative cases, and as to results in relation to the age of the patient, and the day of the disease on which treatment was begun, are shown in detail in the accompanying tables. (Tables Nos. 1, 2, and 3.)

In a large majority of all cases treated—*i.e.*, 793—only one injection of antitoxin was administered; in 352 two injections were made, and in 108 three or more. In all severe cases the initial dose was large, varying from 1500 to 3500 units, experience showing that the best results were obtained from large initial doses, and the tendency has been to constantly increase the size of this dose. This experience is in direct confirmation of the conclusions reached in the experimental investigations on animals. As a rule, the patients were seen the second time at the end of twenty-four hours, and where it was considered necessary a second injection was then administered. They were afterward seen at intervals until the disease had terminated either in complete convalesence or death.

The serum employed has been generally of high grade, and during the last nine months has been at least twice as potent as Behring's No. 3; that is, it contained 300 or more antitoxin units in each cubic centimeter. During the past three months the serum employed contained from 400 to 500 units in each c.cm. Better results have been obtained with the high-grade preparations, and with larger doses. In the earlier months, where large quantities of serum were administered (the serum containing proportionately less antitoxin), rashes were of frequent occurrence; but no reliable data as to the percentage of cases in which they appeared can be obtained. There has been a considerable diminution in the frequency with which rashes have occurred, and in the severity of these, since the use of the

TABLE III.—CASES OF DIPHTHERIA TREATED BY THE HEALTH DEPARTMENT, ARRANGED ACCORDING TO AGE AND DAY OF DISEASE WHEN INJECTED, JANUARY 1, 1895, TO OCTOBER 1, 1896.

AGE.

Age	0–1 Year.	1–2 Years.	2–3 Years.	3–4 Years.	4–5 Years.	5–10 Years.	10–15 Years.	15–20 Years.	Over 20 years.	Totals.	Moribund, or dying within 24 hours, deducted.	Remaining.
Cases	74	214	252	189	182	260	45	13	23	1252	80	1172
Died	21	51	43	30	26	26	0	1	0	198	..	118
Mortality, per cent	28.3	23.8	17.0	15.9	14.2	10.0	0.0	8.0	0.0	15.8	....	10.0

DAY OF DISEASE.

Day of Disease	First Day.		Second Day.		Third Day.		Fourth Day.		Fifth Day, or later.		Unknown.		Total.		
	Cases.	Died.	Cases.	Died.	Cases.	Died.	Cases.	Died.	Cases.	Died.	Cases.	Died.	Cases.	Died.	Mortality, per cent.
Cases and deaths	157	11	331	30	293	42	197	39	262	72	12	4	1252	198	....
Mortality, per cent	...	7.0	...	9.0	...	14.3	...	20.0	...	27.4	..	33.3	....	...	15.8
Moribund, or dying within 24 hours, deducted	5	...	14	...	17	....	15	....	25	....	4	....	80	...	....
There remain	152	6	217	16	276	25	182	24	237	47	8	0	1172	118	....
Mortality, per cent	...	4.0	...	5.4	...	9.0	...	13.2	...	20.0	..	0.0	....	...	10.0

NOTES TO TABLE III.—The total mortality of those injected within the first forty-eight hours of the disease was 8.2 per cent.; deducting the moribund, or those dying within twenty-four hours after injection—4.3 per cent. The mortality of those injected before the fifth day of disease was 12.4 per cent.; deducting the moribund, 7.6 per cent. During the last six months, April to October, there were injected within the first forty-eight hours of disease, 178 cases, with 8 deaths, a mortality of 4.5 per cent.; deducting the moribund, 1.6 per cent. Before the fifth day of disease there were injected 317 cases, with 22 deaths, a mortality of 6.9 per cent.; deducting the moribund, 3.6 per cent.

TABLE IV.—IMMUNIZATION WITH ANTITOXIN BY THE HEALTH DEPARTMENT INSPECTORS, JANUARY 1, 1895, TO OCTOBER 1, 1896.

Table of cases immunized with injections of antitoxin in families where diphtheria had occurred, showing the number of cases immunized, the number of antitoxin units injected, the number of cases of diphtheria which occurred within thirty days after injection, the number of cases which occurred after thirty days and within twenty-four hours after injection, and the number of cases of diphtheria which occurred in the families previous to immunization:

Number of Cases Immunized.	Number of Antitoxin Units injected.	Number of Cases of Diphtheria within 30 days after injection.	Number of Cases of Diphtheria within 24 hours and after 30 days after injection.	Number of Cases of Diphtheria which occurred in families, etc., previous to immunization.
1207	50 to 500	1 on the 7th day.[1] 1 " 10th day. 5 " 19th and 20th days. 1 " 23d day. 1 " 30th day. } Mild. 1 severe on the 5th day recovered. 1 on the 2d day died of scarlet and diphtheria.	After 30 days. 2 mild recovered.[2] 1 on 55th day died. Within 24 hours. 7 mild pharyngeal. 5 croup, all recovered.	One or more cases in 395 families.

[1] Probably had nasal diphtheria at the time of immunization.

[2] The data as to cases occurring after thirty days have but little value, as cases might have appeared without the knowledge of the Health Department.

TABLE V.—CASES TREATED BY PHYSICIANS WITH FREE ANTITOXIN, COLLATED FROM THE REPORTS OF THE ATTENDING PHYSICIANS, OCTOBER 1, 1895, TO OCTOBER 1, 1896.

	Cases.	Deaths.	Mortality, per cent.	Extent of Membrane.				Number of Injections.				Total Injections given.
				Tonsils.	Pharynx.	Nose.	Larynx.	1	2	3	4	
October 1, 1895, to April 1, 1896	86	15	17.2	12	32	9	33	69	16	0	0	101
April 1, 1896, to October 1, 1896	289	53	18.3	88	58	49	94	238	49	1	1	343
Totals	375	68	18.1	100	90	58	127	307	65	1	1	444
Moribund, or dying within 24 hours, deducted	21	..	....	...	..	..	...	...	..	..	..	...
There remain	354	47	13.2	...	..	..	...	...	..	..	..	...

NOTES TO TABLE V.—From October 1, 1895, to April 1, 1896, there were treated with free antitoxin 86 cases, resulting in 15 deaths, or a mortality of 17.2 per cent. Of these 3 were moribund at the time of injection, or died within twenty-four hours after the first injection, deducting which would give a mortality of 14.4 per cent. In 60 cases the diagnosis was bacteriologically confirmed, and of these 6 died, or 10 per cent.; 56 cases were clinically diagnosed, of which 9 died, or 37.5 per cent. From April 1, 1896, to October 1, 1896, there were treated 289 cases resulting in 53 deaths, or a mortality of 18.3 per cent. Of these, 18 were moribund at the time of injection, or died within twenty-four hours after the first injection, deducting which would give a mortality of 12.9 per cent. In 241 cases the diagnosis was bacteriologically confirmed (in 24 cases the examination was indecisive), and of these 35 died, or 14.5 per cent.; 48 cases were clinically diagnosed, and of these 18 died, or 37.4 per cent. Of the 289 cases treated, 60 occurred in institutions, with 9 deaths, or 15 per cent. mortality.

Of the entire number of cases reported, 34 cases are excluded from the statistics on account of imperfect data in the reports, or no Klebs-Loeffler bacilli being found, or the cases being removed to the Willard Parker Hospital and treatment discontinued. In a total of 375 cases treated by physicians with free antitoxin from October 1, 1895, to October 1, 1896, there were 68 deaths, or a mortality of 18.1 per cent.; deducting 21 cases which were moribund at the time, or died within twenty-four hours after the first injection, there were 354 cases, with 47 deaths, or a mortality of 13.2 per cent.[1] Of the total number treated, in 100 cases the tonsils alone were involved; in 90 cases, the pharynx alone, or tonsils and pharynx; in 58 cases, the nose alone, or nose, pharynx, and tonsils; in 127 cases the larynx was involved, either alone or in combination with tonsils, pharynx, and nose. In this table the *prognosis* at the time of treatment, and the *complications* accompanying or following the injections, are not included, because the data given in the reports were insufficient or incomplete.

TABLE VI.—LARYNGEAL CASES TREATED BY PHYSICIANS WITH FREE ANTITOXIN, OCTOBER 1, 1895, TO OCTOBER 1, 1896.

	Total Laryngeal Cases.			Non-operative Cases.			Operative Cases (Intubation).		
	Cases.	Deaths.	Mortality, per cent.	Cases.	Deaths.	Mortality, per cent.	Cases.	Deaths.	Mortality, per cent.
October 1, 1895, to April 1, 1896..	33	12	36.3	23	7	30.4	10	5	50.
April 1, 1896, to October 1, 1896..	94	25	26.6	62	16	25.8	32	9	28.1
Totals	127	37	29.1	85	23	27.	42	14	33.3
Moribund, or dying within 24 hours, deducted	11	..	....	6	..	....	5	..	....
There remain	116	26	22.4	79	17	21.5	37	9	24.3

NOTES TO TABLE VI.—From October 1, 1895, to April 1, 1896, there were 33 laryngeal cases treated with free antitoxin, resulting in 12 deaths, or a mortality of 36.3 per cent.; 23 cases were not operated on, with 7 deaths, or a mortality of 30.4 per cent.; 10 cases were intubated, resulting in 5 deaths, or a mortality of 50 per cent.

From April 1, 1896, to October 1, 1896, there were 94 laryngeal cases treated with free antitoxin, resulting in 25 deaths, or a mortality of 26.6 per cent. Of these, 10 were moribund at the time, or died within twenty-four hours, deducting which, the mortality would be 17.8 per cent.; 62 cases were not operated on, with 16 deaths, or a mortality of 25.8 per cent.; of these, 6 were moribund at the time, or died within twenty-four hours, deducting which would reduce the mortality to 17.1 per cent.; 32 cases were intubated, with 9 deaths, or a mortality of 28.1 per cent.; of these, 4 were moribund, or died within twenty-four hours, deducting which would reduce this mortality to 17.8 per cent. In a total of 127 laryngeal cases treated by physicians with free antitoxin from October 1, 1895, to October 1, 1896, there were 37 deaths, or a mortality of 29.1 per cent.; of these, 11 were moribund at the time of injection, or died within twenty-four hours after the first injection, and if these be deducted, there remain 116 cases, with 26 deaths, or a mortality of 22.4 per cent.; 85 cases were not operated on, of which 23 died, a mortality of 27 per cent.; deducting 6 moribund, or dying within the first twenty-four hours, there remain 79 cases, with 17 deaths, or a mortality of 21.5 per cent.; 42 cases were operated on, with 14 deaths, a mortality of 33.3 per cent.; deducting 5 moribund, or dying within the first twenty-four hours, there remain 37 cases, with 9 deaths, or a mortality of 24.3 per cent.

higher grade preparations of antitoxin in which smaller doses of serum are employed. Joint symptoms were of very unusual occurrence. In five instances abscesses followed the administration of the serum; but in none of these could the abscess be properly charged to the serum itself. In two or three of the early cases where large immunizing injections were employed, severe joint symptoms, accompanied by prostration and pyrexia, occurred, and in a number, temporary (twenty-four to seventy-two hours) albuminuria appeared. Aside from the symptoms referred to, and occasionally a temporary pyrexia, no disagreeable effects in any way attributable to the antitoxin were observed. No case has come under observation where death could be ascribed to the administration of the serum, or where any permanent injury could be properly regarded as having been produced by it.

The data as regards complications are very incomplete, as in the class of patients treated and under the conditions existing, careful observations could not be made. Only the more common complications of diphtheria are noted; in many instances other serious complications existed (notably scarlet fever), and acted as contributing or determining causes of death in fatal cases. All such cases have been included.

In all of the cases, with rare exceptions, in which the clinical features were unmistakable, the clinical diagnosis was confirmed by bacteriological examination. In a few cases the result of the bacteriological examination was indecisive, while the case was evidently diphtheria, and these have been included. In others bacteriological examination showed clearly that the case was false diphtheria, and such cases have been excluded from the list. The usual practice has been when a case was seen for the first time by the inspector (at the request of the attending physician) to administer an injection of antitoxin, if it seemed clinically to be a case of diphtheria, and at the

TABLE VII.—AGE AND DAY OF DISEASE WHEN TREATMENT BY PHYSICIANS WITH FREE ANTITOXIN WAS COMMENCED, OCTOBER 1, 1895, TO OCTOBER 1, 1896.

AGE.

Age.....	0–1 Year.	1–2 Years.	2–3 Years.	3–4 Years.	4–5 Years.	5–10 Years.	10–15 Years.	15–20 Years.	Over 20 Years.	Total.	Moribund, or dying within 24 hours, deducted.	Remaining.
Cases.....	23	39	76	86	37	89	14	1	10	375	21	354
Died.....	5	15	19	13	6	9	1	0	0	68	..	47
Mortality, per cent.....	21.8	38.4	25.0	15.1	16.2	10.1	7.1	0.0	0.0	18.1	..	13.2

DAY OF DISEASE.

Day of Disease.....	First Day.		Second Day.		Third Day.		Fourth Day.		Fifth Day, or later.		Unknown.		Total.		
	Cases.	Died.	Cases.	Died.	Cases.	Died.	Cases.	Died.	Cases.	Died.	Cases.	Died.	Cases.	Died.	Mortality, per cent.
Cases and deaths.....	45	4	101	17	77	8	53	9	67	25	32	5	375	68	....
Mortality, per cent.....	..	8.8	...	16.8	...	10.3	..	17.0	..	37.3	..	15.9	...	..	18.1
Moribund, or dying within 24 hours, deducted.....	1	...	6	....	4	....	3	....	5	....	2	....	21	..	....
There remain.....	44	3	95	11	73	4	50	6	62	20	30	3	354	47	....
Mortality, per cent.....	..	6.7	...	11.5	...	5.5	..	12.0	..	32.2	..	10.0	...	..	13.2

NOTES TO TABLE VII.—From October 1, 1895, to April 1, 1896, there were treated within the first four days of disease 61 cases, with 6 deaths, or a mortality of 10 per cent.; of these 3 were moribund, or died within 24 hours, deducting which the mortality would be 5.1 per cent. From April 1, 1896, to October 1, 1896, there were treated within the first four days of disease 215 cases, with 32 deaths, or a mortality of 14.8 per cent.; of these, 11 were moribund, or died within twenty-four hours, deducting which the mortality would be 10.2 per cent. In a total of 276 cases treated within the first four days of disease, there were 38 deaths, or a mortality of 13.7 per cent.; deducting the 14 moribund, or dying within the first twenty-four hours, the mortality would be 9.1 per cent. In a total of 138 cases treated within the first three years of life, 39 died, or a mortality of 28.2 per cent. From the third to the tenth year there were 212 cases treated, with 28 deaths, a mortality of 13.2 per cent. From the tenth to the fifteenth year the mortality was 7.1 per cent. Over fifteen years, none died. Two-thirds of the cases treated were under ten years of age.

same time to make a culture from the throat for bacteriological examination, if a culture had not been previously made. The course subsequently pursued in each case depended upon the results of the bacteriological examination.

When cases of diphtheria were seen in families in which there were other children, who had been exposed to the disease, and when the parents would allow it, an immunizing injection was administered to each of them, and trial cultures were made from their throats. In a large percentage of these cases, the cultures showed the presence of Loeffler bacilli.

Immunizing injections, varying from fifty to 500 units in amount, were administered to 1207 persons (see table No. 4). In five children who had been immunized, laryngeal diphtheria (croup) developed within twenty-four hours of the time of the injection, and in seven other pharyngeal diphtheria appeared. All of these cases received further curative injections and promptly recovered. In nine cases diphtheria developed within thirty days of the time of immunization. All of these cases excepting two were mild and promptly recovered. In one of these two exceptions, scarlet fever, apparently accompanied by diphtheria, developed on the second day, and the child died.

No data of value are at command regarding the occurrence of cases of diphtheria among those immunized after thirty days; but in one instance it is known that a child developed diphtheria on the fifty-fifth day after immunization, and although it received a curative injection, it nevertheless died from the disease. The experience obtained from the immunization of children in various institutions indicates that the protective influence of the immunizing injections cannot be depended upon to last longer than about four weeks, although in many cases the period is apparently longer. With the high-grade preparations of antitoxin now employed, the amount of serum required for an immunizing injection is very small, varying from 3 to 10 or 15 minims, according to the age of the patient and the strength of the preparation. In the earlier work, when young and feeble infants were immunized, some restlessness, accompanied by more or less pyrexia, occurred in many cases during the first twenty-four hours, and not infrequently a rash appeared later. Similar symptoms appeared in a smaller proportion of instances in adults. In a few cases transient albuminuria occurred. Since the employment of only very small doses of serum, it has been unusual to see any disturbances following the administration of an immunizing injection. In one group of about forty cases recently immunized with small doses, in only one instance was there a local rash near the seat of the injection. In another series of 130 cases, immunized in an infant asylum,[1] in which relatively large doses were administered to infants varying in age from one day up, in only seven cases was there a mild body-rash, and in forty-two a local arm-rash, and in no instances were there other sequelæ.

On October 1, 1895, arrangements were made to enable physicians to obtain supplies of antitoxin, free, for use among patients too poor to pay for the remedy, on condition that reports of the cases thus treated should be furnished to the Health Department. Druggists, acting as agents for the sale of antitoxin, were instructed to furnish the remedy free to any physician, upon his statement that the patient for whom it was intended was not in circumstances to pay for it. A blank was furnished upon which the history of the case could be filled out by the attending physician, upon the termination of the case, either by death or complete recovery, and then forwarded to the Health Department.

This arrangement has not been very generally known, and has not been largely utilized by physicians until quite recently, and in many of the cases thus treated the complete report has not been obtained. Up to October 1, 1896, 409 cases of this sort have been reported, of which 34 proved on bacteriological examination to be cases of false diphtheria, were transferred to Willard Parker Hospital, or had histories too incomplete for proper tabulation, and are, therefore, excluded; of the remaining 375, 307 recovered and 68 died, a mortality of $18\frac{1}{10}$ per cent.

The fuller data regarding these cases, as furnished by the attending physicians, will be found in the accompanying tables. (Nos. 5, 6, and 7.)

(To be continued.)

[1] Among injections made at this asylum were cases: No. 117, an infant, three weeks old, born at full term, injected with 150 units, and weighing at the time of injection only four pounds three ounces; and No. 123, a premature infant, nineteen days old, born at seventh month, and still in an incubator, injected with 150 units, and weighing at the time of injection only three pounds eight ounces. These infants had no reaction whatever and no rash.

Among the pregnant women:

Ten were eight months in pregnancy.
Two " $8\frac{1}{2}$ " " "
Nine " nine " " "

REVIEWS.

PRACTICAL DIAGNOSIS: THE USE OF SYMPTOMS IN THE DIAGNOSIS OF DISEASE. By HOBART AMORY HARE, M.D., Professor of Therapeutics in Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital, etc. 565 pages. Illustrated with 191 engravings and 13 colored plates. Lea Brothers & Co., Philadelphia and New York. 1896.

THE object of this volume, the author tells us, is to place before the physician and student the subject of physical diagnosis as it is at the bedside. To accomplish this, the symptoms used in diagnosis are discussed first, and then their application to determine the character of the disease. This plan has the great advantage that the physician, finding himself in the presence of certain symptoms, or groups of symptoms, is, if he follows this textbook as a guide, led to suspect the organ or system involved. So far we are in accord with the author. We cannot agree, however, that the discovery of any marked symptom will lead to the diagnosis. In support of our contention, let us suppose that the physician elicits in a patient the striking symptom—ankle-clonus. From that symptom he may be led to suspect that the patient has disseminated sclerosis, chronic transverse myelitis,

hereditary cerebellar ataxia, or even grave traumatic neurosis, but the elicitation of this one symptom, as an individual symptom, leads him no further than this, and really he must have in mind, or he must learn from books the symptoms necessary to affirm the presence of one and deny all the others of these diseases before he can make the diagnosis. We do not deny the great advantage of the plan utilized by Hare, but we are unwilling to concede all that he claims for it.

The subject-matter is considered in two parts: the manifestation of disease in organs, and the manifestation of disease by symptoms. In the first part, the various natural divisions of the body, such as the face and head, the hands and arms, the feet and legs, the tongue, mouth, and pharnyx, the thorax and the viscera, the skin, eye, blood, etc., are taken up in separate chapters. The chapters on the tongue, mouth, and pharynx, the abdomen and the abdominal viscera, and the blood, in Part I, are masterfully done. The ones that have most disappointed us are those on headache, convulsions, or general spasms, and pain, in Part II, although these chapters contain some ideas that are new and much that modifies previous points of view.

The illustrations, consisting in part of colored plates, in the chapter on the tongue, mouth, and pharnyx, are among the best we have seen. At the present day the author who teaches that "Hutchinson teeth" are a fairly sure indication of syphilis, must experience a sense of loneliness, for, if we construe the signs of the times aright, "Hutchinson teeth" are indeed no more than a manifestation of chronic malnutrition of which syphilis is sometimes a cause, during the formative and early life of the child. We miss in this chapter some reference to accumulations on the teeth and gums, such as the blue line, a manifestation of lead-poisoning to which some importance can be attached.

The chapter on headache we are sure could be made more valuable by the addition of one or two diagrams, showing the usual location of the various forms of pain referred to the head.

In the chapter on convulsions and general spasms the author says: "There can be no doubt that syphilis produces an enormous amount of epilepsy. . . . Indeed, it would be difficult to name any one statement in medicine which receives more widespread assent on all sides than does this." From this statement we courteously, deliberately, and emphatically dissent. There is a form of epilepsy that deserves the name of syphilitic epilepsy, but compared to all the other forms of epilepsy, in point of frequency of occurrence, it is as the number of red men to the number of white men in this country to-day. As proof of the truth of our remarks we refer to articles on the treatment of epilepsy by any recognized authorities to-day, where a comparison may be made of the space allotted to the respective uses of antiluetic medicaments and bromids. Epilepsy, in the vast majority of cases, shows itself before the end of the second decade of life, and of these cases syphilis is the rarest of all causes. It is only in cases of epilepsy occurring after maturity that a history of syphilis is sought for.

The illustrations of the book are numerous, very well done, and exceedingly instructive. It would be less puzzling to students to have a certain conformity of such illustrations as cross-sections of the spinal cord, so that the ventral horns should always be toward the top of the page, or *vice versa*, and not up in one place and down in another, as on pp. 122 and 223. In the chapter on cough and expectoration, an illustration of the coccus of pneumonia might profitably be added.

If we have found something to criticize in this volume, it is because the reputation of its brilliant young author has prompted us to a careful and minute examination of his latest production. Candor compels us to admit that we have found unmistakable evidence of haste in the preparation of the work, and, likewise, what we believe to be unnecessarily frequent drafts on the labors of others. On the other hand, when we say that there is a wealth of information in the volume of the safest and most orthodox kind, and that it is put before the reader in an easily intelligible and convincing way, we desire not to be understood as endeavoring to make amends for faults that we have found with it. On the contrary, we unhesitatingly commend the book to those for whom it is intended, confident that they will receive as much profit in studying it as we have had pleasure in reading it.

THE MEDICAL NEWS VISITING LIST, 1897. Thirty patients per week. Philadelphia: Lea Brothers & Co., 1896.

THIS practical visiting list is now ready. It appears in its usual good form, and presents in as condensed a space as possible the most important data necessary to assist physicians in cases of emergency. In addition, its chief object is not lost sight of, for this little pocket-book affords more than ample means of recording all the daily engagements of the physician, as well as future ones which he proposes to make.

It is in most convenient form, not bulky, and is truly a "pocket-book." It certainly excels in this and in many other respects most of the visiting lists put on the market.

Obituary.—Dr. John A. Arnold, medical superintendent of the Kings County Hospital, died on the 4th inst. Dr. Arnold was fifty-one years of age, and had been connected with the hospitals of Brooklyn for twenty years. He was regarded as an able physician and an unusually efficient officer in the administration of the affairs of the institution under his care.

Facial Epithelioma Treated by Methylene Violet.—At a recent meeting of the Paris Medical Society M. de Castel described the treatment of facial epithelioma by methylene violet, which he has followed for the last two years. Every third day he applies to the diseased part a solution of methylene violet, 20 grains, and alcohol and glycerin 1 dram of each. After two weeks of this treatment a solution of chromic acid (1–5) is substituted for a few days, and then the methylene is used again. Vegetations should be scraped off to insure penetration of the drug.

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ORIGINAL ARTICLES.

THE PRACTICAL VALUE OF THE RÖNTGEN-RAY IN THE ROUTINE WORK OF SURGICAL OFFICE PRACTICE.

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THE object of the present communication is to illustrate the usefulness of the Röntgen-ray in the daily office work of the busy practitioner. The results which I have obtained in X-ray photography, as shown by the accompanying illustrations, are not, of course, to be compared with those from elaborately and expensively equipped laboratories and hospitals, for they were all taken in connection with my routine office practice. They have been selected from a large number to show the value of skiagraphy in the every-day work of one who knows nothing about photography, nothing about electricity, and but little about physics; who, in short, knows just enough of the principles involved to enable him to place the patient, the tube, and the plate in a proper position, and to turn on the current.

A further object of this paper is to show, if possible, that no surgical consulting-room is fully equipped without an apparatus for X-ray investigation. Doubtless the application of this device to medical diagnosis is quite as important as to surgical, but this question I leave to others more competent to judge.

In the course of the past three months I have been able not only to make accurate diagnoses in many cases, in which accuracy was impossible without the X-ray, but also to avoid serious mistakes in the investigation of fractures and dislocations. I have been able to watch the growth of an osteosarcoma until, from having invaded half the radius, it had destroyed the whole; to ascertain the situation and extent of patellar and other fractures when such knowledge was of great value, and could have been acquired in no other way. In other instances I have been surprised to see the excessive malposition of fragments which, by former methods of examination, seemed to be in unusually good approximation. It has been possible also to detect foreign bodies in the trunk and in the extremities, with a certainty which seemed extraordinary. Results thus obtained in every-day work by one so ignorant of the subject, lead to the belief already expressed, that the X-ray apparatus is indispensable to the consulting-room; that it is as essential to the surgeon as the mirror to the laryngologist, or the stethoscope to the general practitioner.

The cumbersome and expensive apparatus of the laboratory, of the hospital, or of the expert, seems unnecessary in connection with every-day skiagraphy —as unnecessary as a knowledge of cathodes and annodes, of poles and coils. The technic of skiagraphy, like that of the telephone and phonograph, should be of the simplest kind, and should require only the most elementary knowledge. Not that a knowledge of, and taste for, electricity and physics is useless, but for the general application of skiagraphy such knowledge and aptitude is not necessary.

The essentials, therefore, of an X-ray apparatus for general office work, both in fluoroscopy and in photography, are (1) simplicity, and (2) ease and rapidity of application. It is extremely desirable that the apparatus, of whatever form, should be connected with the street electrical mains. Storage-batteries are less convenient, though they may be used when connection with the street-currents is impracticable. That form of Crookes' tube is of the greatest value which is not easily disarranged or broken, and which can be easily adjusted in different positions. The sole efforts of the surgeon should be directed to the adjustment of the patient and the tube, and to the use of the fluoroscope, and of the photographic plate. Impairment or complete arrest of even the simplest and best machinery must of necessity take place, from the very nature of the process—accidents which cannot be prevented even by those who are most familiar with electrical machinery. It is essential, therefore, that the apparatus should be supplied by responsible firms who are prepared, when summoned, to respond at once by sending expert repairers. In this respect the X-ray apparatus should be on the same footing as the telephone, the phonograph, and the typewriter. Upon this point considerable stress should be laid, for the breaking down of an apparatus in the middle of an office hour, when, perhaps, appointments have been made for its use, may subject both surgeon and patient to inconvenience and annoyance.

The method should be capable of rapid application. Many machines require so much time for their adjustment that they cannot be recommended, even if their results are superior to those of a method more

speedily applied. The one with which the accompanying illustrations were taken required no preparation whatsoever. The current (a direct one derived from an Edison light fixture in the wall of the room) passes through various machines to the Crookes' tube. The most important part of the apparatus is, I believe, a Tesla coil immersed in oil. The tube is so mounted that it may be placed in any position. By turning one lever, a portion of the machinery begins to move; by turning a second, the tube is excited and the ray is produced. The whole in its application is simplicity itself. Should the apparatus fail to work, the company at once sends a man to put it in order.[1] In many cases, particularly in examinations of the hand or the foot, a minute or even less is sufficient to give all the necessary information; in others, especially in examination of the thick parts—the shoulder, the knee, the trunk, for example—a longer time is necessary. In ordinary cases of fracture, dislocation, or presence of a foreign body, the use of the fluoroscope requires not over five or ten minutes—a period of time which would be a short one for making a careful diagnosis in obscure cases under former methods of observation. I have used the Carbutt plate of various sizes. After an exposure of from thirty seconds to fifteen minutes, the plates are labeled, put one side, and sent when convenient to the developer.

The value of the X-ray in office work is conspicuous in the detection of fractures and dislocations of the bones; in the demonstration of integrity whenever suspected fractures and dislocations do not exist; in the detection and localization of foreign bodies; in the diagnosis of growths composed wholly or in part of bone. It has, of course, other and less important uses. Unless the surgeon has the apparatus at his elbow, this information can be obtained only by sending the patient to a hospital or to an expert; even then, the surgeon must depend upon an oral or a written opinion, or upon a photograph, unless he goes himself with the patient—reasons which themselves justify the assertion that every surgeon should do his own skiagraphy. In recent fractures—chiefly of the upper extremities, the clavicle, and the ribs—the exact position of the fragments, before and after reduction, can be made out. With the aid of an assistant a faulty adjustment may be rectified at once. Displacement of the fragments may be discovered long before the time for reapplication of the splints. In those fractures of the lower extremities which present themselves at the office, the same information may be obtained. Indeed, an early fluoroscopic examination of every fracture may soon be required of every surgeon for the protection of the patient, and an early photograph for the protection of the surgeon.

In old fractures the information to be gained by the method under consideration is often invaluable, for only in this way can we determine the position of fragments, the point of impingement, and the cause of impaired functions. Here, as in most X-ray work, the fluoroscope gives vastly more important information than the photograph, because one sees in succession the parts from every point of view.

FIG. I.

CASE II.—Fracture of both bones of the forearm. Condition ninety-six days after the accident.

Dislocation of the extremities, old and new, can never be overlooked in fluoroscopy. The slightest variation from the normal is immediately visible in an extremity, below the shoulder or the hip. Even in the shoulder an obscure dislocation can generally be detected, unless the parts overlying the bone are unusually thick. The occasional failure to detect a dislocation of the elbow—a mistake with which the

[1] For four weeks this has been unnecessary. I have used the same tube as often as occasion has required, and nothing whatever has been done to the machinery or to the tube.

most experienced are sometimes confounded—is impossible if the surgeon, as a matter of routine, examines with the fluoroscope. I have overlooked a backward dislocation of both bones of the forearm during twenty weeks' constant observation—an error in which my colleague shared. This fact alone justifies the proposition upon which this communication is based—that the new method of observation is one of the essentials of every-day examination. In another instance, that of a man of sixty, the physician in attendance was sure that there was an unreduced dislocation of the humerus. In spite of careful and repeated examinations by the usual methods, I was

Fig. 2.

Case VI.—Osteosarcoma of the radius demonstrated by the skiagram. Previous diagnosis was aneurism of the radial artery.

not absolutely convinced that the head of the bone was in its proper place until I examined the shoulder carefully with the fluoroscope from several points of view.

In ununited fractures, especially of the humerus and of the forearm, the situation of the bone can be detected with great ease. In one instance the physician blamed himself, and the patient the physician, for a non-union of the humerus, when a careful examination with the fluoroscope showed that the bones were in perfect apposition. What prevented the union of the humerus it was impossible, of course, to say; it was nevertheless a great satisfaction to know that the non-union did not depend upon any faulty position of the fragments.

In the detection of foreign bodies the apparatus is, of course, indispensable. Two or more points of view are essential to determine by triangulation the exact position of the body.[1] The demands from this source are, however, infrequent. As in other X-ray examinations, the fluoroscope possesses far greater value than the skiagram. Other not infrequent uses for the X-ray in general surgical practice are the demonstrations of bone diseases—exostoses, tumors, loss of substance, irregularities in contour, and variations

Fig. 3.

Case VIII.—Compound fracture of the tibia and fibula. Skiagram taken three months after the accident.

in size. In some instances, notably of osteosarcoma, it is possible to detect the growth in its early stages, as soon as the density and contour of the bone is affected. Such a growth may be watched from week to week; the bone may be seen gradually to melt away before the invading neoplasm. In tumors of undoubted bony origin deductions based upon density may easily be made. Exostoses, especially of the extremities, often present pictures of the greatest detail and accuracy (Fig. 3). Irregularities in outline from erosions, necroses, bony deposits, in fact all forms of bone-disease attended by change in form, widen still

[1] Trowbridge, *American Journal of Science*, vol. i, 1896.

further the scope of skiagraphy. It must be borne in mind that all the investigations detailed in the foregoing paragraphs may be made in the course of the ordinary surgical examination.

The following cases have been selected from a large number to illustrate the foregoing remarks:

CASE I.—July 14, 1896: Mrs. A., aged thirty-two, sustained a fracture, July 1st, of both bones of the forearm. The fracture had been reduced immediately by a surgeon of great experience. By ordinary methods of examination, the arm seemed in perfect condition; in fact, a more perfect approximation of fragments could hardly be imagined. A skiagram showed the radius in good position, the ulna with a marked displacement of the lower fragment. The patient made an excellent recovery, however, without perceptible deformity or loss of function.

CASE II.—October 5, 1896: Mrs. B., aged thirty-two, fractured both bones of the left forearm, June 26th, by being thrown from a bicycle. The arm was placed in a metal splint half an hour afterward by a physician. On October 5th, I found a fracture of both bones of the forearm, with considerable deformity and serious loss of function, both as to rotation and flexion of the hand. The skiagram (Fig. 1) shows the position of the bones and the amount of deformity. The fluoroscope gave me a most perfect idea of the extent and nature of the displacement. In spite of the displacement, massage by Dr. Graham has considerably improved the arm.

CASE III.—October 10, 1896: Miss G., aged twenty-seven, fell, January 10, 1896, in the street and fractured the right patella. She was kept in bed, with the usual treatment of such injuries, for three months. A second fall resulted in a refracture, with excessive separation of the fragments of the patella. The fluoroscope showed that the lower fragment was directly over the articulation between the tibia and the femur; that the upper fragment was some four inches higher; that there was a third small fragment loosely attached to the lower one, and slightly separated from it. This fragment was shown to be also partly divided; it could not be detected by digital examination. The seat of injury was exposed on October 13, 1896, and, after much difficulty, by cutting the tendon of the quadriceps above and below the patella, the parts were brought into position. The small fragment interfered so much with approximation that it was entirely removed. The patient has made a good recovery.

CASE IV.—October 13, 1896: Mr. C., aged sixty-two, had been troubled for six years with a painful thickening of the terminal phalanges of the great toe of the right foot. Digital examination seemed to indicate a thickening of the bony parts of this toe. A skiagram showed most beautifully all the bones of the foot, but nothing could be seen indicating disease of the bone. The demonstration was very satisfactory, and solved the question of operative interference.

CASE V.—October 16, 1896: G. B., a boy of twelve, had been injured in the left hand, two weeks before, by a bullet from an air-gun. It was not supposed possible by the attending physician that the bullet had penetrated the palm. The fluoroscope showed plainly a small metallic object over the distal extremity of the middle metacarpal bone. A side view showed the depth of this bullet in the palm. Under cocain the bullet was removed.

CASE VI.—October 17, 1896: General W., aged fifty-nine. This gentleman had had for five months a painful swelling in the right wrist. By means of the fluoroscope the ulna was seen to be intact, the radius to terminate abruptly in the faint shadow of the carpal tumor (Fig. 2). A thin shell of the radius could be seen remaining. The diagnosis of osteosarcoma of the radius, made from the history of the case and from inspection and digital examination, was practically proved by the fluoroscope and by the skiagram. A previous consultant had assured this patient that the tumor was an aneurism of the radial artery. In a second skiagram, taken a month later, the shell of bone had entirely disappeared, a fact that demonstrated the bony origin of the tumor and the rapidity of its extension. The arm was amputated, and the disease proved to be an osteosarcoma of the radius.—In a precisely similar case, Mr. F., aged seventy-three, a tumor of the left wrist was diagnosticated beyond a doubt by the Röntgen-ray. In this case, skiagraphed by an expert, the bony structure of the tumor could easily be seen. The arm was amputated after the incision of the tumor and the microscopic demonstration of its nature.

CASE VII.—October 17, 1896: Mr. P., aged twenty-seven, presented himself with a fracture of the patella of three months' standing. The fluoroscope and a skiagram showed a ligamentous union of a fracture in the lower and middle thirds of the patella. It was proposed to allow the man to go about his business. The fragile union, clearly demonstrated by the X-ray, alone justifies the opinion that he ought not to use the limb freely till the expiration of six months.

CASE VIII.—October 19, 1896: Mr. J. M., aged sixty, had received from a fall a compound fracture of the left leg. The bones of the tibia and fibula had been extensively comminuted, with laceration of the skin. He was under my care at the Massachusetts General Hospital, where he remained some three months. On his discharge from the hospital the leg was perfectly straight; there was no impairment of the function of the ankle, and the union was unusually firm; yet a rather poor photograph clearly shows the extraordinary position into which the bones had been adjusted (Fig. 3).

CASE IX.—L. S., a girl of thirteen, had suffered for nine months with a large painful tumor of the left thigh. After amputation at the hip joint an X-ray photograph was taken of the tumor. The relation of the tumor to the femur, and the involvement of the bone were more clearly shown than was possible in any other way. The growth was an endothelioma (Wright). The patient made a good recovery.

(To be continued.)

BEST METHODS OF EXAMINING SICK CHILDREN, WITH A CONSIDERATION OF SOME OBSCURE OR RARE MALADIES.

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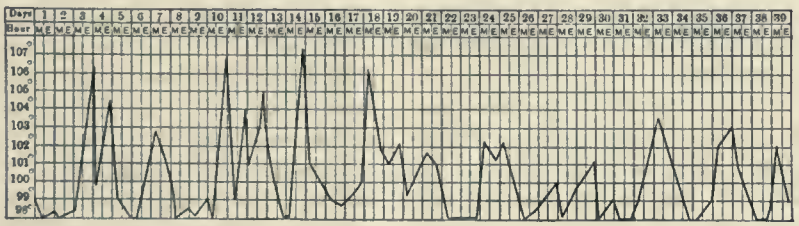
THE examination of children in sickness is surrounded with difficulties which do not occur when the patient is of a more advanced age. The young child cannot describe its suffering, or tell us the seat of its disease; many of its ailments are peculiar, are more concealed, and require more time for investigation and exact diagnosis than the maladies of later life. Therefore, the physician who wishes to excel as a pediatrist must not expect to make a brief visit when summoned to a case, but must remain long enough to learn all the essential details of the malady. Upon visiting a sick child he should enter the nursery quietly, preceded by the mother or nurse, and taking a seat at a distance from the patient, and without appearing to notice him, should learn its history and the particulars of its sickness. With the information thus obtained, and a careful observation of the symptoms, so far as they can be observed at a distance, the experienced physician can often make a diagnosis, which a closer examination shows to be correct. In some instances this distant examination gives a more accurate idea of the nature of the malady than is to be obtained by a closer inspection. The pain of an otitis media is indicated by the infant carrying its finger to the ear, but it does not do this if frightened by the near presence of a stranger.

Attempts to amuse a sick child are always proper, and the physician should endeavor to accommodate himself to the degree of mental development of his patient. The child should feel that he has a friend and playmate in the doctor, and he will then act in a more natural manner, and with less concealment. In my practice, the percussion-hammer, and the prescription-paper and pencil, used for amusing the patient, often divert his attention from his sickness, and by this occupation of his mind his symptoms usually become more manifest. One of the most distinguished pediatrists in America has a soft, melodious chime connected with his watch, and this attracts and delights the little patient, if he be not in too much pain, and he submits more readily to an examination. Force should never be used except in the case of the restraint necessary for the inspection of the fauces. A physician who endeavors to overcome the dread and resistance of a sick child by threats and scolding will never be successful in treating children. After the history has been ascertained (which should include the age, mode of feeding, previous diseases, and in some cases, the health of the parents, together with the symptoms, manner of commencement, and duration of the present sickness), the physician is prepared to approach the patient. No physician need be told how important it is to ascertain the temperature, but in an emotional child, excitement, as that produced by fright, may cause such a sudden increase as may prove misleading. The following case is an example of this:

A female child in its second year, wetnursed by its mother in the New York Infant Asylum, during my visits in 1894, and carefully attended by the resident physicians, Drs. A. and E. Parry, had a mild intestinal catarrh, which did not, however, appreciably affect the temperature. The infant



was extremely emotional. The sudden entrance of a stranger, or his attempts to hold it, or the slamming of a door, caused the high and transient elevations shown in the accompanying chart.

A physician examining a case of this kind would probably make an error in diagnosis, if he did not remain long enough to witness the decline in the fever. Instances of such great variations in temperature from the emotions are not common, but that they do occur should be borne in mind. A young musician of this city immediately before he appeared upon the stage always had a temperature of 102° F.; at other times it was normal. A resident physician of the Charity, now City, Hospital, at one time had a dangerous attack of typhoid fever, by which he was much reduced. The fever finally disappeared, and he began to convalesce, when some friends presented him with a gold watch. The gift took him by surprise and his emotion was so great that it caused his temperature to rise to 103° F.

To prevent any possible aberration from fright or excitement, it is better that the temperature of a child

be ascertained by the mother or nurse before the approach of the physician.

During my long service as one of the physicians to the N. Y. Foundling Asylum I have attended many infants for whom breast-milk could not be obtained. Most of these children had been left at the Asylum doors, and were under the age of two months, and many under one month. There being a large maternity service in this institution, the breast-milk was obtained in as many instances as possible, and those infants receiving it, as might be expected, did better than the bottle-fed babies. The death-rate of the latter was always large, and the most certain sign of the near approach of death was the occurrence of a subnormal temperature. The fall of temperature, at first slight, gradually increased, and when it had descended to 96° F. death uniformly occurred in two or three days, notwithstanding active stimulation. In weak and wasted infants suffering from malnutrition, therefore, a persistent subnormal temperature must be regarded as a very unfavorable prognostic sign.

No one need be told of the importance of observing the presence of abnormalities in the state of the eyes. Dilatation, inequality and sluggish movements of the pupils, oscillation, and strabismus, occurring during the course of an illness, are unfavorable diagnostic and prognostic signs, since they are indicative of cerebral disease.

Rachitis I find, in its early stages, is often overlooked or wrongly diagnosticated. The late Professor Henoch of Berlin has said that rachitis has increased enormously of late in the cities of central and northern Europe; I have found it common in its worst form in Italian immigrants and American negroes, and this is probably due to the poor diet and the unsanitary condition in which they live. I attribute the large increase of rachitis in this country partly to the pauper immigration, and partly to the extensive use of proprietary foods, without any, or with too little, milk. I have examined the composition of thirteen of the commercial foods, and I find that nine of the thirteen contain less than one per cent. of cream. It is sufficient for the present purpose to draw attention to the increasing frequency of rachitis in America, either as a complicating or primary disease, believing that if the fact of its frequency were generally known, the error of a mistaken diagnosis, in its early stages, would be less common.

In diseases attended by emaciation the brain wastes in the same manner as other parts of the system, and if the sutures and fontanels are not closed, and the cranial bones are thus movable, the frontal and occipital bones are depressed and overridden by the parietal. This fact has led to serious mistakes in diagnosis. With the exception of those abnormalities in the shape and development of the cranium, which result from, and pertain to, rachitis, all will agree that in following the advice given by Rilliet and Barthez to "study cerebral symptoms with care," the anterior fontanel will require more attention than any other part of the cranial arch. We all know the significance of a tense and elevated fontanel, occurring without premonition, but attended by fever, and not abating when cool applications are made to the head. In infants in previous ill health, who are much emaciated, the brain, as has been said, participates in the general waste, and if tubercular meningitis, which is not uncommon, occur, with considerable increase of the cerebrospinal fluid, this increase, as I have observed, does not equal the waste, and the fontanel remains depressed. This fact should be borne in mind to prevent error in diagnosis.

Cases are by no means rare in which faucial inflammations of a grave nature are overlooked in their beginning. Mothers, and sometimes physicians, have informed me that the symptoms of the case under examination did not indicate any involvement of the fauces, when inspection revealed the presence of disease which urgently required treatment. A nasal discharge (though slight), huskiness, or other change in the voice from the normal, or an occasional cough, should direct attention to the fauces and lead to their examination. The physician will never regret that he has made this inspection, and often the whole line of treatment will be changed. Without such examination, I have known malignant diphtheria to be mistaken for mumps, and mild diphtheria, with but little tenderness and swelling, to escape notice entirely. Inflammation of the air-passages in infancy and childhood is in many instances trivial, and soon begins to abate, but in a severe form is dangerous, and even fatal; and, from its frequency, it requires a careful examination before diagnostic and prognostic opinions are expressed. Infantile bronchitis, in its commencement, though confined to the larger tubes, if attended by restlessness and fever, should not be made light of. The inflammation is probably pursuing a downward course. Bronchopneumonia is especially a disease of infancy. Unlike the adult pneumonia, it is seldom accompanied by the brick-dust sputum, and bronchitis being a prominent element, a cough is frequent from beginning to end. In this respect it is unlike pleurisy, which, even in the purulent form, sometimes never gives rise to cough during the entire course of the disease. There are other diseases of the pulmonary and circulatory systems in children which are interesting, and which should be carefully considered before a diagnosis is made, but we must pass them by.

One disease I have not infrequently observed in ill-fed and anemic children, as well as in adults. There is tenderness and dull pain, increased by pressure, over a certain area, whether upon the forehead, face, chest, abdomen, or elsewhere. Pressure along the spine and over the rootlets of the nerves which supply the affected part is not only painful at the point of pressure, but it intensifies the habitual pain from which the patient suffers. It has been variously designated as spinal affection, spinal irritation, hyperesthesia, etc. The late Professor Austin Flint was among the first to direct attention to this disease. In 1844 he published a statistical paper descriptive of what he called "the spinal affection," and in his classical treatise on the "Principles and Practice of Medicine," 1886, he designated it "spinal irritation." To my knowledge, this malady is often mistaken for chronic indigestion, gastro-intestinal catarrh, or subacute pleurisy, and if the patient be treated according to one of these diagnoses, he is certain to be made worse. The symptoms of "spinal irritation" and vertebral caries are, in some cases, very similar, but it is not difficult to distinguish one from the other if the mode of examination given in orthopedic treatises is carried out. Dr. Flint once told me that when in Paris he attended the clinic of a distinguished physician, whose name is favorably known in both hemispheres, and a case of abdominal tenderness was presented. After an examination, the professor diagnosticated the condition as peritonitis, and courteously allowed him to examine the patient. Pressure upon the spine elicited pain, which was felt not only along the spine, but over the abdomen. Flint recognized the disease which he had studied so carefully, and expressed the opinion that it was of nervous origin, resulting from anemia, and was not inflammatory—an opinion in which the distinguished clinical teacher concurred after further examination. When we consider that this mistake in diagnosis was made by a physician of great renown, and if not rectified would have led to improper treatment, how important it is that the statistical monograph written by Austin Flint fifty-two years ago should be carefully perused, and the facts which he forcibly presents be impressed upon the memory!

Another disease, the early diagnosis of which is not difficult, is intestinal intussusception. In a considerable proportion of these cases the displacement is not diagnosticated until the chances of recovery are slight. In many patients the invagination takes place by the prolapse of the lower part of the ileum through the ileocecal orifice. This causes swelling and hardness, which may be mistaken for appendicitis. The diagnosis of intussusception is, I think, not difficult, for in whatever part of the intestinal tract it is located, the occlusion is usually so complete that, after the rectum is once washed out, only blood, or blood with mucus, escapes from the invaginated gut. This character of the discharge differentiates the condition from appendicitis, which is not attended by bloody evacuations.

I have heard it stated by some of the oldest physicians of New York that during their entire professional life they have from time to time been summoned to attend children, even as young as two or three years, who have had a fever, which, through want of accurate knowledge of its nature, they have designated malarial. The younger physicians, following their seniors, have adopted the same nomenclature, and, though a false designation, it is likely to be perpetuated. This fever, as I have observed it year after year, occurs during any season, but appears to be most frequent in the autumnal months. Ordinarily it comes on gradually, with malaise, chilliness, anorexia, headache, moderate thirst, weakness, and a dull expression of face. The fever is constant, varying in degree at different times in the twenty-four hours, being usually highest in the evening and at night. A slight cough may also be present. In uncomplicated cases, the most thorough examination fails to reveal a local cause adequate to produce the fever. The duration of this malady varies; it may not be longer than nine days, or it may last for some weeks. Quinin has no appreciable effect, unless that it diminishes in slight degree the febrile exacerbations. There is commonly no marked abdominal tenderness or decided tenderness or enlargement of the liver or spleen, and in most cases no rose-colored eruption. A physician of this city has informed me that some twenty-five years ago he attended a case of this fever, which was unusually protracted. The late Professor Alonzo Clark, who was also in attendance, stated that for many years he had taught in his lectures that this mild fever in children was a form of typhoid, but he had never had the opportunity to verify his diagnosis by an autopsy, as he had never observed a fatal case; but a former pupil of his, practising in a New England city, had recently lost a child from this fever, and being permitted to make an autopsy, had found distinct typhoid lesions. Since Professor Clark's death his opinion of the nature of this fever has been abundantly verified by clinical observations and autopsies. Moreover, in some of the instances, the children, mildly sick in the manner which I have described above, evidently communicated the fever in its usual form to the nurses. Thus, in my practice, two children had the fever in its usual mild form, refusing to remain in bed, and sitting in a listless manner most of the time close to the fire. In about two weeks, when they began to

convalesce, the nurse sickened with the same disease, which continued in a very severe form for thirty-five days.

The term malarial fever, so commonly applied to the mild typhoid or enteric fever of infancy and childhood, is, therefore, a misnomer, and in the present advanced state of pediatric knowledge should be abandoned.

UNILATERAL ALBUMINURIC RETINITIS, WITH CASES.[1]

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USUALLY both eyes are affected in albuminuric retinitis, although it is common to find more extensive lesions in one eye than in the other, just as one kidney is often more diseased than its fellow. In many cases, in the early period of the disease, the visual defect is asymmetrical, one eye exhibiting retinitis or neuroretinitis, while the other is still free from inflammatory or degenerative changes. Subsequently, however, in the great majority of cases, both retinas become affected.

In regard to the frequency with which unilateral cases occur, opinions differ. Thus, Gowers[2] says: "Both eyes are almost invariably affected," while Knies[3] declares "Unilateral cases are not a rarity;" and, again,[4] "Unilateral retinitis albuminurica is not extremely uncommon."

In confirmation of Knies' declaration, a number of cases of monolateral neuroretinal lesions attributed to so-called chronic Bright's disease may be found scattered through medical literature. Thus, Despagnet,[5] in his statistical report of the retinal diseases seen in the Galezowski clinic, records a case of unilateral retinitis albuminurica; the right eye was affected, the left being entirely normal. Yvert[6] observed in a forty-eight-year-old patient unilateral, left-sided retinitis albuminurica, with characteristic changes in the macula. At the autopsy, only the right kidney, in a state of parenchymatous inflammation, was present. Brunet[7] describes a case of right-sided anasarca with right-sided retinitis albuminurica. W. Cheatham[8] records "a perfect picture of neuroretinitis albuminurica" of the left eye in a girl aged fourteen, whose urine contained cysts and albumin. The right eye was healthy. Henry Eales[1] reports a case of supposed unilateral albuminuric retinitis, the visual disturbance appearing one day after an injury to the left loin. Three weeks later, the right eye being normal, there were in the left eye neuritis, and exudates in the macula. The final outcome of the case was an atrophic disk, with glistening patches in the macula and degeneration of the choroid. Albumin, which was present, gradually disappeared; casts were not found. Bull, in his analysis of 103 cases,[2] remarks: "Both eyes were affected at the time of the examination in fifty-four (54) cases, and both eyes became affected while the patients were under observation in ninety-three (93) cases." The natural inference from this quotation is that there were ten (10) unilateral cases. Almost ten per cent. of one-sided retinitis albuminurica is a clinical observation somewhat at variance with the accepted ideas on this subject, and therefore I wrote to Dr. Charles S. Bull with reference to this point, and received the following reply:

> You are quite correct in inferring that in the paper written by me in 1886, and referred to by you, there were ten cases of unilateral neuroretinitis, which remained so until the end of the patient's life. None of these cases came to autopsy by me, though in two an examination was made *post mortem* by another physician. It is, perhaps, pertinent to state that in these ten cases the renal disease was severe in its onset, and rather rapid in its progress, and in none of them lasted longer than five months. I have under observation now a case of nephritic neuroretinitis, confined to one eye, which has lasted eight months, and the other eye is, *as yet*, intact.

These cases will suffice as examples of unilateral neuroretinitis of nephritic origin scattered through literature, and also suffice to show that it is not an uncommon phenomenon. I have no doubt there are many more, as I have not attempted an exhaustive search.

My personal experience comprises the examination of two cases. One of these I have briefly recorded elsewhere.[3] This patient was a colored man, who came from the medical clinic of the Hospital of the University of Pennsylvania to the Eye Dispensary, with the report that he was suffering from Bright's disease, and requesting an ophthalmoscopic examination. The fundus oculi of one eye was practically normal, while the other showed an extensive neuroretinitis. The patient was not again seen, so far as I am aware, and I have no knowledge of his future history or of the future conduct of the case.

The case which I particularly wish to report to-night has been under observation for some time, and is as follows:

Stephen Punnell, a negro laborer, aged fifty-one years, came to my dispensary in the Philadelphia

[1] Read in the Section of Ophthalmology in the College of Physicians of Philadelphia, November 17, 1896.
[2] "Medical Ophthalmoscopy," third edition, 1890.
[3] "Die Beziehungen des Sehorgans und seine Erkrankungen zu den übrigen Krankheiten des Körpers und seiner Organe," Wiesbaden, 1893, page 311.
[4] *Loc cit.*, page 314.
[5] *Recueil d'Ophthalmologie*, 3 Série, 4, 1882, p. 93.
[6] *Ibid.*, 3 Série, 5, 1883, p. 145.
[7] *Journ. des Scienc. med. de Lille*, No. 9, 1884, p. 313.
[8] *Journ. Amer. Med. Assoc.*, vol. v, 2, 1885, p. 150.

[1] Trans. of the Ophth. Soc. of the U. K., vol. v, 1885, p. 126.
[2] Trans. Amer. Ophth. Soc., 1886, p. 185.
[3] De Schweinitz, "Diseases of the Eye," second edition, p. 433.

Polyclinic on the 13th of June, 1896, complaining of loss of vision in his right eye. He also stated that he had pain in the lumbar region, and had noted increased frequency of micturition.

For the history of this patient, and for the physical examination, I am indebted to my assistants, Dr. Frances Janney and Dr. Mary Getty, as follows:

The patient's mother died at the age of fifty-five, and before death "had swelling in both feet." His father died, aged sixty-nine, from paralysis. The patient's habits are good. He has never used liquor, and there is no history of syphilis. His previous illnesses were measles, whooping-cough, typhoid fever (in 1869), and bilious intermittent fever, two years ago. He dates his present illness to three years ago; but declares he has suffered from lumbar pain since the Civil War. Physical examination reveals a normal heart and normal cardiac action.

Ocular examination: Vision of the right eye $\frac{6}{15}$, unimproved by glasses; of the left eye, after the correction of a low grade of hypermetropic astigmatism, $\frac{6}{4}$. There were no abnormalities of the pupil-reflexes or of the external ocular muscles.

The pupil of the right eye having been dilated with cocain, the following lesions were discovered: A disk with congested surface, but clear edges; extensive flame-shaped and irregular hemorrhages occupying the temporal region as far as the macula, and somewhat beyond it, and the upper retina nearly to the periphery of the eye-ground; a few scattered hemorrhages on the nasal side, the entire lower half of the eye-ground being free from gross pathologic changes. In addition to the hemorrhages, there were numerous roundish and elongated yellowish-white patches, some in close proximity to the hemorrhages, and evidently representing areas of fatty change, as well as patches of degeneration, the sequel of previous hemorrhagic extravasations. The arteries are about normal in size, the veins somewhat distended, and slightly tortuous.

It will be noted at once that the lesions are not typical in the sense of a star-shaped figure in the macula and a "snow-bank appearance" around the disk, but represent those which we are accustomed to associate with thrombotic conditions in the retinal venous circulation. Closer examination of the distribution of the veins makes it evident that the upper and lower temporal vein are fairly normal in constitution, although in places somewhat covered above by exudation. The lower nasal vein is also well marked, while the upper nasal vein, from its point of entrance into the optic disk to about one-half the disk diameter, upward and inward, appears to be obliterated, or is present only as a very fine thread. Beyond this point the vein can be readily traced. This appearance adds still more to the supposition that the primary lesion in this case was a thrombosis of a venous branch, rather than a true retinitis or neuritis. We have, in other words, a condition of apoplexy of the retina, rather than a neuroretinitis.

In the left eye the surface of the disk was about normal in appearance; there was some fine white haze in the immediate neighborhood of the disk, but no hemorrhages, no splotches, and no areas of degeneration. The refractive error was a hypermetropic astigmatism ($+.50s.\bigcirc+.50c.$ axis 180), and with this glass, vision, as before stated, was $\frac{6}{4}$.

The patient was referred to the medical dispensary for general treatment, and Dr. Riesman has kindly furnished me with the results of the urinary examination. An average examination is the following: *Microscopic:* An unusual number of oxalate-of-lime crystals, many uric-acid crystals, and numerous broad granular casts. *Chemic:* A large amount of albumin, no sugar; blood, by the guaiac test. Specific gravity varying from 1011 to 1031.

From that date to the present time the patient has remained under my observation, and under suitable treatment from my medical *confrères*. Abundant clinical examinations indicate a typical case of interstitial nephritis.

The following changes have occurred in his fundus oculi: Decrease in the areas of hemorrhagic extravasation, with development of larger areas of degeneration, and well-marked lines of perivasculitis. The vision at the present time remains as before, $\frac{6}{15}$ in the affected eye and $\frac{6}{4}$ in the left, or unaffected eye, which continues to be normal in appearance.

In regard to the etiology of unilateral neuroretinitis, or so-called hemorrhagic retinitis, in Bright's disease, various theories may be utilized. Yvert explained his case of one-sided retinitis albuminurica by assuming an irritation of the sympathetic nerve of one side, due to a unilateral affection of the kidney. It will be remembered that at the autopsy on his patient the left kidney was absent. He based his explanation on the opinion of Potain, who believed that the one-sided anasarca of Bright's disease, which has been observed after contusion of the kidney, and also in Bright's disease without such history, was explainable by an abnormal action of the sympathetic nerve. Eales, whose patient also suffered from an injury of the loin, with rapid unilateral retinal affection and albuminuria, is inclined to accept Yvert's view of irritation of the sympathetic as the most plausible, under the circumstances.

Although we have one case substantiated by autopsy in which one kidney alone, in a state of parenchymatous nephritis, was responsible for a unilateral retinal lesion, as Knies remarks, this observation does not permit the inference that in disease of one kidney the retinal affection will be one-sided.

In a case like my own, the starting-point of the disease is apparently not in the retina, but rather in the vessels of the optic nerve, the retinal changes, hemorrhages, spots of degeneration, etc., being secondary to this condition, and I suspect that in some of the other cases reported as unilateral neuroretinitis the same lesions may have been present. It is by no means a new observation. Knies has seen

hemorrhage into the optic nerve of one eye, with blindness, in a case of albuminuria; one year later the opposite eye was attacked by a pure hemorrhagic retinitis. Hemorrhages in the optic nerve have been demonstrated *post mortem* a number of times under these circumstances, particularly in the investigation of Herzog Karl Theodore, and the etiological relation of nephritis to thrombosis of the retinal vein, or one of its branches, is well known.

A point of some importance is the one referred to at the beginning of this paper, namely, that for a time a unilateral retinal or nerve-head lesion in Bright's disease is common; subsequently the ordinary bilateral character of the affection appears. It is probable that some of the reported unilateral cases have been recorded at a time when the visual defect was still asymmetrical, bilateral retinitis occurring before the termination of the case. It will be remembered that Bull, in his series of 103 cases, found that both eyes were affected at the time of the examination in fifty-four, or about half of them, from which we would infer that the other half were unilateral. Of these unilateral cases, however, all but ten of them subsequently became affected on both sides.

Evidently, as Knies has remarked, unilateral albuminuric retinitis is not a rarity, a certain percentage of cases maintaining monocular retinal lesions until death. In another large percentage of cases the unilateral character of the affection is maintained for a considerable period of time, but ultimately becomes bilateral. An interesting clinical observation in these unilateral cases would result from catheterization of the ureters and separate analysis of the urine from each kidney. My patient has thus far declined to submit to this procedure.

INTRAVENOUS SALINE INJECTIONS IN CONDITIONS OF SEVERE SHOCK.

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THE advantages to be obtained by the intravenous injection of large quantities of the "normal salt solution," during or immediately after operations accompanied by much hemorrhage or shock, are now well understood. It is, perhaps, not so well known that similar advantages may be obtained by the same means in cases of injury followed by marked shock, with or without important hemorrhages externally, or into the natural cavities, or among the tissues of the body. The following cases may serve as illustrations:

CASE I.—A. R., aged thirty-one, was struck, December 17, 1895, on the right side and front of the abdomen, and squeezed against a wall, by a piece of structural iron weighing 700 pounds, which he was engaged in moving. He was immediately brought to the New York Hospital. When I saw him, three hours later, the condition of extreme shock, which was present on admission, persisted; the abdomen was tender and distended, the flanks dull on percussion, and a slight intra-abdominal wave could be obtained. There was evidence of an intraparietal hematoma on the right side between the ribs and the ilium. The urine did not contain blood.

Twenty ounces of the salt solution were at once introduced through the median basilic vein. This was followed by a prompt improvement in the general condition; and as the local signs grew no worse the attitude of expectation was maintained. Complete recovery followed.

CASE II.—Chas. A., admitted to the New York Hospital, December 11, 1895, after having just fallen from the third floor of a house. Several ribs on the left side were broken, and there was extensive emphysema of the chest wall; marked shock.

Twenty ounces of the salt solution were injected into the median basilic vein. Recovery.

CASE III.—James S., admitted to the New York Hospital, December 13, 1895, with fresh burns, covering almost the entire body. Extreme prostration. The patient was placed in a hot bath and received a large saline injection, but died 3½ hours after admission.

CASE IV.—William B., twenty years old, was admitted to the New York Hospital, October 23, 1896, having just been run over by a dummy engine. The left foot and ankle were crushed, the joint being widely opened; compound fracture of the right radius; compound dislocation of the right thumb; simple carpo-metacarpal dislocation; profound shock; semi-conscious.

The left leg was immediately amputated, the patient receiving meanwhile a saline intravenous injection of 34 ounces; this brought his pulse down to 88, but an hour later it rose to 160; a second injection of 34 ounces was then given, bringing the pulse to 120. Recovery.

There is also reason to think that similar advantages may be gained by the same means in severe septic conditions. In July, 1896, I saw in the wards of my friend, Professor Pozzi, in the Broca Hospital, Paris, a woman, who had been admitted three days previously, gravely ill with puerperal septicemia. The only treatment had been the immediate administration of a large intravenous saline injection. This was promptly followed by a marked reduction of the temperature and improvement of the general condition, which still persisted when I saw her. The following case may be quoted in connection:

CASE V.—Chas. L., aged twenty-seven, was admitted to the New York Hospital, December 1, 1896, suffering from general peritonitis, due to perforative appendicitis. The attack began on the night of November 28–29th, about sixty hours before ad-

mission. The abdomen was distended, tense, and painful; the surface dusky; the pulse rapid, small, and of bad quality; temperature 102° F. Fecal vomiting.

The abdomen was immediately opened, and the appendix, which had been completely divided near its base by ulceration, was removed. Several ounces of pus from the neighborhood of the appendix was removed, and then a large quantity of turbid serum from the general peritoneal cavity. The intestines were congested, distended, and coated in many places with a fibrinous exudate. The general peritoneal cavity was thoroughly irrigated and sponged with salt solution, drained with gauze and two large rubber tubes, and the wound partially closed.

The patient's condition, as shown by his pulse and surface circulation previous to the operation, occasioned much anxiety. About 24 ounces of the salt solution were injected by an assistant while I was operating. This was followed by an immediate improvement, which persisted through the day. On the following day the general improvement was maintained, and the local conditions were better, the left side of the abdomen being soft and painless. This continued until December 4th, when the vomiting was renewed, all efforts to secure a movement from the bowels having failed. The pulse again became almost imperceptible, the surface dusky, and the nose cool. An injection of 60 ounces was made, and the same improvement followed, but the vomiting persisted, and the patient died early on December 5th. It seems clear to me that in this case the injection prolonged life fully three days, enabled me to perform the operation and check the peritonitis, and only failed to save the patient because of the persistence of the intestinal paresis.

The good effect of these intravenous injections is doubtless due to the change in the physical conditions created thereby; the intra-arterial pressure is increased, and, presumably, osmosis is carried on more freely. Possibly, too, the presence in the body of the large additional amount of water favors metabolism and excretion, and thus diminishes the production of deleterious compounds and aids the removal of those that are produced.

While no direct curative effect has been proved, yet the injection gives to a patient, who apparently has but a few minutes or hours to live, a respite, during which his organism may recover from the shock received, or throw off a septic assault that is pressing, or during which the physician may, perhaps, successfully employ remedial or helpful measures.

The technic is simple. A sterilized, graduated vessel, provided with a rubber tube about three feet long, ending in a fine pointed glass or metal nozzle, is required. The solution can be readily made by mixing common salt and water in the proportion of ninety-two grains (a large, but not heaping, teaspoonful) to a quart, and sterilizing it by boiling. It should be injected at a temperature of about 105° F. The vein should be exposed, a ligature passed beneath it, and the vein opened by snipping it half across with scissors. The water is then allowed to fill the tube, the nozzle is inserted into the vein, and the ligature tied about it so as to prevent slipping. The vessel holding the solution is then raised two or three feet above the patient, and the solution allowed to run in.

Some deem it simpler and equally beneficial to throw the solution into the subcutaneous tissue by means of a syringe and hollow needle, taking pains afterward to distribute the liquid by rubbing toward the heart.

THE SIGNIFICANCE OF PAIN.

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WHAT the study of special forms of disease is to the science of medicine, so is the study of the effects of disease, whatever be its special form, to the practice of medicine. If the characters of an affection are sufficiently definite, it is proper to give it a name to distinguish it from other affections. But this designation of diseases by special names may be in practice a hindrance, rather than a help, if it leads to the treatment of diseases according to their names, because even the most special affections may induce derangements which are common to more than one disease, so as to render the state of the patient, rather than his particular disease, the chief concern of the physician.

Viewed under this aspect, certain common, but important, symptoms of disease assume an interest quite their own, sufficient to warrant their being made the subjects of separate study. Their relation to diagnosis, prognosis, and treatment is often of the first importance, and yet this may be but inadequately appreciated amid the desultory reference to them in the symptomatology of special diseases. As a useful introduction, therefore, to the consideration both of general and of specific morbid processes, I would devote a few lectures to some phases of the general semeiology of disease, as illustrated in the case of certain leading symptoms, whose significance always merits special investigation in whatever connection they may occur.

We begin with the subject of "Pain" as a good example of the advantage which the particular study of a single symptom may afford. In diagnostic value alone it is not to be surpassed by any of the common signs of disease, and it would be well, whenever it is mentioned by a patient, to make it the subject of exclusive attention before proceeding to any other

investigation, until both its nature and significance are as fully determined as possible.

The investigation should begin with a request that the patient show just where the pain is felt most, and where it first began. While he is doing so, the gestures which he uses should be carefully noted, as they often afford truer indications than his language does, because verbal descriptions of pain may be extremely indefinite. As a rule, such gestures are characteristic enough to aid materially in the recognition of the particular variety of pain, if not also of the nature of the affection itself which is present, as the following examples will show.

When the pain is due to inflammation, if external, as with a joint, the patient will avoid touching the most painful part, or he approaches it in a very respectful way. Thus, with an arthritis his hand passes over the joint in a hovering fashion. If deeper seated, the gestures are often expressive of the varying kinds and distribution of the pain, according to the texture inflamed. Thus the diffused soreness of a mucous-membrane inflammation causes the gesture of bronchitis to be made with the whole hand laid on the sternum, and then passed over and across the chest. A similar movement of the hand across the abdomen never means a peritonitis, but a catarrhal intestinal inflammation. With pleurisy, on the other hand, the tips of the straightened fingers are used to indicate the stabbing nature of the pain. In peritonitis, also, the tips of the fingers are used, but brought down with much more caution than in pleurisy. In the localized pain of commencing appendicitis, the open hand is used, as with an inflamed joint. In pleurodynia, the whole hand is pressed firmly to the side, to prevent movement of the ribs. In rheumatic fever, the pointing by the patient to the epigastrium or to the xiphoid cartilage, especially if followed by a movement from the precordium up the neck or into the left arm, is significant of cardiac inflammation. So also the gesture in gastritis, whether acute or chronic, is wholly different from that in colic. Inflammatory pains about the head may have very characteristic gestures. The use of one finger-tip to localize it on the scalp is strongly significant of intercranial syphilis. The finger-tips passing up the side of the face and stopping on the scalp an inch below the sagittal suture indicates a pain ascending from a tooth, and should not be mistaken for a trigeminal neuralgia. In conjunctivitis, the hand is laid over the eye. In iritis, the finger is pointed toward it, not touching it, and then passed up the forehead to the inner side of the nose or to the malar process. In glaucoma, the gesture may be reversed, as if the pain was emerging from the orbit. All these gestures differ entirely from those of head-pains not inflammatory. Meningitis, whether cerebral or spinal, is significantly indicated by absence or suppression of gesture, for reasons to be noted further on. The exceptions to this are in some cases of tubercular meningitis. But the gesture of myelitis, with both hands passed from the back across the abdomen, to describe the cord or band-like sense of constriction, is almost itself pathognomic.

On the other hand, the gestures indicating the seat of the greatest pain produced by pressure, as by tumors, abscesses, etc., or cramps, markedly contrast with those of inflammatory pains in showing no apprehension in touching or in moving the part. Here the locality indicated at first by the gesture is of importance to note, and whether, on repeating the question, the same place is again started from, because the patient's hand then moves in a fashion expressive of the extension or radiation of the pain from the original focus, although he may describe the pain as equally present at some distance from the spot first pointed out. Hence, his unconsciously repeating the sign with which he commenced is of much significance. Thus, a patient with a growth springing from the lumbar vertebræ always first pressed the point of two fingers deeply into the abdomen below the umbilicus, while the fingers of the other hand moved over the sacrum, where he insisted that his pain chiefly was. A fixed pain in the back caused by an aneurism is often indicated by the extended thumb, and likewise the pain preceding herpes zoster, but no spinal inflammatory pain will elicit such a gesture, nor will the pains of so-called spinal irritation.

In stretching pains, such as in biliary or renal colic, or cramps, as in lead colic, the contrast to inflammatory pains is shown by the forcible grasp or pressure which the patient makes on the abdomen, while the characteristic radiations of the different varieties may be very plainly represented. Even when the pain has ceased, the gestures descriptive of what he had experienced may be equally conclusive as to their nature.

The gestures expressive of true neuralgic pains contrast throughout with those of inflammatory pains. A functional occipital headache is shown by a friction-like movement of the hand from the neck up, sometimes followed by pressure on the eyes with the fingers. So the hands are used with the firmest pressure in temporal or frontal neuralgias, or the patient may tightly tie a handkerchief around. This proneness to grasp or to press the aching head, as well as to move the aching part, is characteristic of neuralgic pains everywhere in the body. The gestures are also valuable from their indicating the shifting character of neuralgic pains, enough, at least, to dis-

tinguish them from the more fixed pressure-pains of tumors. Special characters of neuralgic pains are frequently most graphically described by the gestures, as in the darting pains of tabes.

Subjective pains, as in hysteria, are very characteristic in their being more numerous and varied than true objective pains can be, and, secondly, in the inconsistency of the gestures with the often highly wrought description of them by the patient. Both the language and the manner of the patient is more like one telling the tale of a woful past experience than of a present reality.

I might multiply many illustrations of the clinical value of gestures descriptive of pain, toward making a right beginning in diagnosis. I have already implied, however, that pains differ much in kind and in character, and hence the necessity of distinguishing their special varieties. For this purpose, I would classify them into six different forms, as follows:

(1) Pains due to inflammation. (2) Pains due to pressure. (3) Pains due to stretching. (4) Neuralgic pains. (5) Subjective pains. (6) Cutaneous reflex pains.

Inflammatory pains have three great characteristics. The first is that pain is elicited by pressure upon, or by handling the inflamed part, and the rule is that pressure produces the maximum amount of pain at the seat itself of the inflammation. This fact is useful in diagnosis, both positively and negatively. Thus, an inflammatory pain in the leg may be due to peripheral neuritis, to sciatica, to hip-joint disease, to gouty arthritis, to rheumatic arthritis, to muscular rheumatism, or to spinal meningitis, and each one of these may be distinguished from the others by appropriate palpation. In peripheral neuritis, pain is most complained of on pressure upon the skin and superficial structures much more than when you lift the whole limb in your hands or move its joints. Sciatica is diagnosed by the special tenderness on pressure at the sciatic notch, along the course of the nerve down the back of the thigh, or deep in the popliteal space, or between the heads of the soleus in the calf; hip-joint disease by pressing the head of the bone against the acetabulum. I have shown[1] that a gouty arthritis may be distinguished from a rheumatic arthritis by the different points of tenderness about most of the joints in these two diseases. In gout, the tenderness is distinctly most pronounced at the condyles; in rheumatism, along the tendons and at their insertions, and not on the condyles. Thus, at the knees, in acute gout, the condyles are very painful on pressure compared with the rest of the joint, while in rheumatism the most pain is elicited by pressure on the tendon of the quadriceps above and below the patella and on the tendons of the hamstring muscles. This same difference in the points of tenderness between these two affections is also well shown in the fingers. The pain of muscular rheumatism in the leg is shown by pressure or manipulation of the muscles themselves, and this serves to distinguish it from pains in the leg in spinal meningitis, where you may manipulate the muscles without pain, but you cannot move the whole leg without making the patient cry out, or, if comatose, groan out from the pain so caused. On the other hand, a child may complain of severe pain on the inner aspect of the knee, but you press the part and it does not increase the pain, which shows that the seat of the inflammation is not there, but, by proper manipulation, may be found higher up—at the hip-joint. Similarly, a child may complain of constant pain in the stomach, and I have known such a case thoroughly dosed for worms; but tenderness on pressure at the eighth dorsal vertebra showed that it had incipient Pott's disease.

Careful manipulation to locate tenderness will frequently reveal the nature of a trouble which otherwise may be very obscure. Tenderness on pressure along the course of an intercostal nerve may dispose of a diagnosis of heart-disease or, as I have twice known, of cancer of the liver.

So tenderness on pressure, highly located, may indicate the presence of a hepatic or of a renal calculus. In the former case, press the tip of the index-finger deeply down at a spot one inch and a half to the right, and an inch below the umbilical line. In renal calculus, standing behind the patient, first place the thumbs of both hands under the last ribs, and then so spread the fingers over the abdomen that when the patient relaxes the abdominal walls by bending well down you can push the kidneys up toward the spine; then, as he straightens up, press the thumbs in strongly, whereupon, if he has a renal calculus, he will quickly bend over on that side. You may further confirm the diagnosis of a hepatic or renal calculus by putting one pole of a faradic battery on the spine, and then suddenly applying the other with firm pressure at the places just indicated, when you will distinctly elicit the same kind of pain which manipulation does. In appendicitis, much is made of the special tenderness elicited by pressure at what is called McBurney's point, on a line midway between the anterior spine of the ileum and the umbilicus.

The second great characteristic of inflammatory pain is that it is increased by any form of movement of the inflamed part, not excepting its own proper functional movements. The inflamed part, therefore,

[1] "Transactions of the Association of American Physicians," Washington, 1896.

is both voluntarily and involuntarily kept at rest as much as possible. This is done by muscular action, the afferent impression of this pain being reflected to all the associated muscles of the part to restrain their action, and even to muscles which, though not usually connected with the function of the part inflamed, yet may disturb it by their movements. Examples of the first kind are seen in the fixity of joints by the contraction of their muscles whenever and as long as the joints are inflamed, while the latter is shown by both the local or general rigidity of the abdominal muscles, according to the local or general state of inflammation underneath. Thus, comparative palpation made by both hands in the iliac fossæ is of help in the early diagnosis of typhoid fever. You can exclude gastritis as the cause of stomach symptoms if there be no rigidity in the epigastrium. In appendicitis, from the commencement of the irritation the muscular resistance over the cecum may have the feel of a solid tumor much before there has been time for exudation or pus-formation. A number of other characteristic and significant signs are thus developed, which point both to the existence of inflammation and to its seat. There is no part of the body, for example, so often moved for purposes of attention or expression as the head. When, therefore, on approaching a patient's bed, you notice that he turns his eyes, but not his head as well, to look at you, the reason may soon be found in rigidity of the muscles of the neck, owing to meningitis. It is a good sign of improvement in such a case when his head acts naturally with his eyes or nods in assent. A healthy child constantly bends or unbends its back, but a child carefully picking up something from the floor by bending its knees without bending its back should lead you to examine it for vertebral disease. There may be lameness from either arthritis or sciatica in the leg, but the muscular actions are characteristically different in each of these inflammations. I need not say how the movements of the ribs in breathing are watched by us for the same reason in examining for phthisis, pleurisy, or pleurodynia. Hence the muscular accompaniments, so to speak, of inflammatory pain are of much service in diagnosis, because all the other varieties of pain have nothing to do with the muscles. The only exception to this statement is in some cases of hysterical muscular contractions with much complaint of pain; but the other features of these cases enable us readily to distinguish them from inflammatory rigidity.

The third great characteristic of inflammatory pain is that it is accompanied by disturbance of the normal function of the injured part. Now this does not happen with the other varieties of pain, at least as a characteristic of them. Neuralgic headache, for example, is not accompanied by delirium or, ordinarily, by intolerance of light or of sound, as the headache of meningitis is. Neuralgic pains in the spine, in the arms, or in the legs do not produce stiffness nor fetter the movements of those parts, whose chief functions are to execute movements, while inflammatory pains do. So the diagnosis between pleurisy and pleurodynia lies in the fact that the pain on movement of the ribs in pleurisy causes the functional symptom of cough, while that of pleurodynia does not, for the seat of the pain is not in the pleura at all. Again, when a pain in the chest is accompanied by an altered ratio between the frequency of the respiration and the frequency of the pulse, we have strong reason from this significant disturbance of a lung-function to suspect pneumonia. If inflammation of the heart or of the pericardium causes pain, it is always accompanied by signs of disturbed heart-action. So gastritis cannot cause pain without being accompanied by symptoms of gastric functional disorder. The same is true of peritonitis, enteritis, or dysentery. I once wondered why a patient who complained of attacks of severe pain just above the pubis had been twice sounded by surgeons for stone in the bladder, when he showed no signs of disturbed function in the bladder whatever. It proved to be due to chronic lead-poisoning from the prolonged use of a hair-dye.

Besides these three great characteristics of inflammatory pains, the sensation itself often varies in kind, according to the tissue involved. The rule is, the softer the texture the more acute the pain; so that it may be described as only dull and heavy, as in inflammation of the liver or in a pneumonia which has not involved the pleura. In inflammations of mucous membranes, the pain, if moderate in degree, is more like a diffused soreness; if severe, it may be termed burning. Whenever griping or bearing-down sensations develop, it is because the inflammatory irritation has extended from the mucous membrane to the muscular coat of the wall of the canal or viscus which the membrane lines. Pain of inflamed serous membranes is much more acute than in the case of mucous membranes, and is apt to be lancinating or stabbing, as indicated by the patient's gesture. Pain of inflamed fibrous tissues, such as muscular fascia, nerve-sheaths, periosteum, dura mater, etc., if moderate, is of a dull, aching character; but if severe, is very violent, on account of the unyielding nature of the tissue. A serviceable indication of the seat of the inflammatory process is afforded by the susceptibility of patients with any form of fibrous-tissue inflammation to changes in the weather. In health, there is a perfect adjustment between the centrifugal pressure of the circulation and the centripetal pressure of the

weight of the atmosphere. Changes in the latter, as indicated by the fall in the barometer on the approach of a storm, are readily compensated for by the nerve-fibrils being readily removed in the softer tissues from unbalanced intravascular pressure, but not so in the denser fibrous tissues. Hence the good, but inconvenient barometers which a gouty man has in his toes, which may ache worse while the sky is yet clear, but which he knows, from experience, means that the clouds are on their way. So a patient with sciatica finds his bed-covering no protection when his leg wakes him in the middle of the night with its observations on the weather out of doors. It is well, therefore, to ask whether a headache complained of grows worse just before a storm, when you have reason to suspect that it is no mere functional trouble, but a cephalalgia of syphilitic origin.

Inflammatory pain is peculiarly local, and therefore referred to the part inflamed, except when the inflammatory process involves the course of nerves. In that case, it may be radiated either along those nerves directly or to some region in nervous association with the seat of the inflammation. Thus, the pain in ulcerative gastritis is often radiated to the sixth or seventh dorsal vertebræ. Inflammation involving the convex surface of the liver affects the distribution of the right phrenic nerve on the under surface of the diaphragm, and from there may radiate to the top of the right shoulder or between the scapulæ. Inflammation of the vertebræ sends pain to the anterior distribution of the surface-nerves. Inflammation of the kidney radiates pain to the testicle and down the inside of the thigh, while inflammation of the fundus of the bladder produces pain felt in the head of the penis. In some cases of inflammation of the prostate, pain is felt in the sole of the foot. In every case, however, these pains can be proved not to belong to the region to which they are referred by the fact that the patient has no objection either to movement or pressure of the part.

The treatment of inflammatory pains is that of the inflammation itself, and hence often different from, if not the reverse of, the treatment of other kinds of pain. The first indication is rest, including the position which assures most rest. After a rheumatic carditis, the patient had better stay three or four months in bed if he still has cardiac pains and a quickened pulse. Nothing is more serviceable sometimes in the later stages of pleurisy than to limit as much as possible the movements of the ribs by firmly strapping the whole affected side of the chest. But the instances in which this principle can be applied are too numerous to mention here. In many acute inflammations, the vascular sedative action of topical blood-letting is often remarkably effective in relieving the pain. On the other hand with the pains of chronic inflammations, the stimulant effect of counter-irritation is preferable, according to the rule that the indications in the treatment of chronic inflammations are the opposite of those for acute inflammations. In traumatic lesions, both the pain and the inflammation are generally treated best by the local application of ice-bags, but cold is useless when the inflammation is due to a general cause in the blood, as in rheumatic and gouty arthritis. Cold applications should be discontinued at once if they cause a neuralgic pain to take the place of an inflammatory pain. Many internal inflammatory pains are best relieved by the sedative properties of moist heat applied to the surface, as by poultices, etc., according to the general law that the cutaneous sensory nerves are always in association with the vascular nerves of the parts underneath. The great drug for inflammatory pains is opium. Next comes aconite, especially in serous membrane and cardiac inflammations. The coal-tar analgesics, so valuable in the other kinds of pain, are comparatively useless in inflammatory pains.

CLINICAL LECTURE.

ANEURISM OF THE AORTA; HYSTERICAL HIGH TEMPERATURE; TREATMENT OF PNEUMONIA.[1]

BY A. ALEXANDER SMITH, M.D.,
OF NEW YORK:
PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE AND CLINICAL MEDICINE IN THE BELLEVUE HOSPITAL MEDICAL COLLEGE.

CASE I.—This woman is forty-two years of age, has been in this country ten years, is married, and has had several children. She gives a history of having been in good health up to within three months. She then began to complain of pain extending from the lower sternal region to the right side. There was a moderate amount of cough and shortness of breath, the latter becoming more and more pronounced. There is no specific, rheumatic or alcoholic history, and none of accident. I speak of these things in order to exclude certain points in etiology. She has just walked upstairs, and although it has made her short of breath, it has not, apparently, added much to her pain. She has coughed two or three times within the last fifteen minutes.

She seems well nourished. Her countenance appears somewhat anxious, but that might be due to nervousness on coming before so many strangers. The eyes are a trifle prominent. There seems to be a little cyanosis about the lips, but that may be due to dilatation of the venous capillaries. Where shall we look for the cause of her symptoms—in the heart or lungs? The heart is enlarged, but without any valvular lesions. She has never spat blood, and has never had any pulmonary trou-

[1] A clinical lecture delivered at Bellevue Hospital.

ble, except this shortness of breath. You will notice, on inspection of the chest, aside from the difficulty of breathing, that there is a fulness above the sternum. But she is forty-three years of age, and is pretty stout, and in stout people we often see such fulness, it usually being of no special significance. I have said she has no pulmonary disease, and there is enlargement of the heart, without valvular lesion. What can cause enlargement of the heart without valvular disease? Possible causes are cirrhosis of the liver, contracted kidney, arterial sclerosis, and tumor. Having excluded the first three, how might a tumor bring about this condition? It would probably have to be in the thorax, and near enough to the heart to produce obstruction, as happens in disease at the aortic orifice. The heart has to act with increased force to overcome the obstruction.

We have already determined the presence of some enlargement above the sternum, and on palpation we find a slight pulsation in this region, but this might be present without a coincident lesion in a nervous or anemic person. The transverse portion of the arch of the aorta is near to the finger when palpating in the suprasternal notch. The pulsation felt is not an expansile one. On percussion we find dulness, amounting almost to flatness, at the right of the upper third of the sternum. Auscultation, with the aid of the stethoscope, reveals a roaring sound or hum, which occurs practically with the first sound of the heart. It would not do to puncture the tumor to determine whether it is an aneurism or not. A few years ago a colored man came here with a huge tumor in the upper portion of the thorax. It fluctuated, and a physician had told him to poultice it for another forty-eight hours and he would then open it. The patient entered the hospital with an aneurismal tumor thirteen inches in diameter, the largest on record.

Having determined the presence of the tumor, how are we to know that it is an aneurism? By more careful palpation over the area of thoracic dulness, pressing the fingers between the intercostal spaces, and aiding them further by pressure with the other hand, we find an expansile pulsation in the tumor synchronous with the cardiac systole. The second sound of the heart is very loud and is accentuated. The pulse in the right radial artery is much more feeble than that in the left. While this might occur in connection with any mediastinal tumor, it is so much more likely to be met with in cases of aneurism that it constitutes further evidence in favor of our diagnosis. She has practically no cough. The tumor might press upon the recurrent laryngeal nerve and cause paralysis of the vocal cord, usually of one side only, but in this instance the larynx has been examined, and no paralysis has been found. She has marked diminution of the respiratory murmur, extending down the right side. This condition is not always present in aneurism, but the sign is of value in connection with the others when it is present. There is no specific history in this case, as there is in most cases of thoracic aneurism not due to traumatism. We do find it occasionally in persons with simply a rheumatic or gouty history. Anything that will produce endarteritis may produce aneurism, but syphilis is the most frequent cause.

The patient has an aneurism at the junction of the ascending and transverse portion of the arch of the aorta—the most frequent seat of thoracic aneurism. It is the most frequent seat, probably, because it is at this point that the blood first meets with resistance; it is the first point where it turns the corner after leaving the left ventricle. There are a good many other points of interest in connection with the subject of aneurism, but the one of special interest in this case is that the woman was able to come here and walk up the stairs with such slight discomfort, considering the size of her aneurism.

CASE II.—We have here a patient whose case presents a number of points of interest, but one in particular, to which I wish to call your attention. She came into the hospital about a year ago with an attack of acute articular rheumatism, and along with it evidences of a chronic endocarditis, the result of a former attack of the same disease. There was evidence of lesions at the aortic and mitral orifices, and the heart was very much enlarged, hypertrophy predominating over dilatation. Compensation was ordinarily good. She still has a double lesion at the mitral orifice, as well as a double one at the aortic. Secondary to this, or as a result of the damming back of blood in the pulmonary vessels, she has dilatation of the right ventricle, with tricuspid regurgitation. One would think that was enough, but, in addition, she has a moderately enlarged spleen and a very decidedly enlarged liver, and also gives evidences at times of a passively congested kidney, but all of these are secondary to the cardiac disease. She has also had several attacks of pulmonary edema, and three days ago became very much excited, and had palpitation and evidences of want of heart-compensation. Pulmonary edema developed, and her temperature, in the evening, was found to be as high as the thermometer would register—in other words, 112° F. The house-physician thought there might be some error, and took the temperature again, this time in the rectum, and again it went up to 112° F. Thinking to still further corroborate the observation, he took the temperature with another thermometer, and with the same result. That was three days ago. The next day the temperature was up to 104.6° F., and last night it was 108° F.

The case is of special interest, since we were told a few years ago that a temperature of 108° F. was inconsistent with recovery; yet here is a patient with advanced cardiac disease, and with her viscera passively engorged, who will develop such a degree of temperature and recover from it, notwithstanding all of this crippling of her organs. I am surprised that she can have a temperature of 112° F. and not only survive, but be practically in the same condition as she was before. Cases in which excessively high temperatures have been recorded have been usually in connection with hysterical patients. This patient is to be classed in that category. Some of you may remember that I have cited a case reported by a gentleman of high authority, where the temperature of a male patient rose to 122° F. Another case was reported at a meeting of the Association of American Physicians and Clinicians in which a thermometer was made especially for a patient, the temperature rising to 148° F. In each of these cases

there was an hysterical element. It would seem that in hysterical patients there is a sensitive condition of the heat-centers that, under certain conditions, is conducive to a very high degree of temperature. In this instance nothing was done to lower it, and the patient soon recovered her normal status.

CASE III.—We have here an Italian who was brought to the hospital in a cyanosed condition, and with evidences of consolidation of the upper and middle lobes of the right lung, believed to be pneumonia. He was put to bed at once and given ordinary treatment. The temperature ran high, ranging from 104° to 106° F., and the pulse was dicrotic. On account of the cyanosis the house physician had oxygen administered freely, and, in addition to sustaining treatment, he was given baths. When I saw him I decided to try a plan which I had seen work well before. All treatment was stopped, and cold compresses were applied to the side, extending from the axilla down to the free border of the ribs. Over the compress a towel was placed, and over that oiled silk, the latter for the purpose of keeping the bedclothing dry. The compress was made of a folded sheet, and was dipped in water at a temperature of 70° F. I gave instructions not to hesitate to resort to other means of relief should bad symptoms arise. His temperature began to come down within two hours, the compress being changed every hour during the day, and every two hours at night. The pulse became less frequent, more powerful, and lost its dicrotic character, and he became a great deal brighter; he could sleep, his whole appearance changed, and the cyanotic condition, which had already improved under the oxygen, improved still further. This treatment, by cold compresses alone, was tried somewhat as an experiment. As you know, I am not much of a believer in local applications in pneumonia. It certainly does not seem rational that we can make any applications around the thorax which will directly affect the internal organs. I am inclined to think that as much benefit will come from wrapping the wet cloths around the abdomen, and I have made up my mind to try it. I will make the application to the same amount of surface as upon the thorax, and will see whether the same result will follow. I admit that if there is pain, the putting on of a pretty tight compress will give a certain amount of relief, and the patient can then breathe more deeply, just as would happen if one were to put on strips of adhesive plaster. Simply pinning a cloth tightly around the chest will have some beneficial effect. Of course, the application of cold compresses is simply a modification of the bath treatment. It is more comfortable, and is easier to carry out, and the applications are made oftener.

Vaccination in Great Britain.—The government bills to be introduced in Parliament at its next session will include a measure exempting from vaccination the children of parents who have conscientious objection. Government inspectors are now visiting calf-lymph stations on the Continent to ascertain the best means of preparing and distributing calf-vaccine, the use of which by doctors the government is being strongly urged to make compulsory.

CLINICAL MEMORANDUM.

REPORT OF A CASE OF ANTHRAX CARBUNCLE.

BY M. G. MOORE, M.D.,
OF VINCENNES, IND.

ALTHOUGH the typical anthrax carbuncle is not likely to be confounded with any other affection, diagnosis is apt to be delayed on account of the extreme rarity of the disease in this country. In persons employed in handling wool and hides, the physician is on his guard, and diagnosis is usually made early, but in cases in which the occupation of the patient furnishes no clue, the disease is very likely to get beyond control before its gravity is recognized. We know, however, that the disease does occasionally occur in our country, that early diagnosis is essential to its successful treatment, and that treatment, to be efficient, must be prompt and radical.

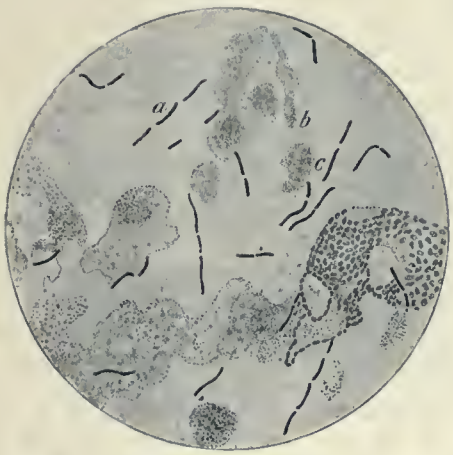
The case which is here reported occurred in a man, aged thirty-nine, proprietor of a livery-stable, and prior to this infection in excellent health. The source of infection is doubtful, though it may be stated that a few days prior to the appearance of the lesion, the patient had spent two days at a sale of Texan horses, and had been among the animals much of the time. It is not known, however, that any of the horses were diseased in any way. Nevertheless, it is possible that an animal may carry the disease without itself being infected, and we may conclude that in this we have the probable source of infection.

On July 13th, there appeared on the patient's face, at the point of the cheek-bone, a minute, dusky-red papule, with burning and itching, out of proportion to the size of the eruption. On the second day, the eruption assumed a vesicular form, the burning and itching being entirely gone. On the third day, the vesicle burst, disclosing a central eschar as large as the end of a lead-pencil. Up to this time there had been no symptoms aside from the local lesion, but on the evening of the third day, the patient experienced marked rigors for about two hours, followed by mild fever, accelerated pulse, headache, and general aching, especially of the limbs. From this time the patient was confined to his room, though able to sit up most of the time. By the fourth day the eschar was enlarged to the size of a penny, presenting a tough, grayish, sloughing surface, from which continually oozed clear serum. An area of induration extended for a considerable distance around the lesion; about a third greater than a silver dollar in circumference, of a decided purplish color, stony, hard, and absolutely painless. Outside of this area of induration there was much swelling, extending to the orbit and the corner of the mouth anteriorly, to the zygoma above, to the ear, and involving the parotid posteriorly, and to the lower border of the jaw below. The enlargement of the parotid was painless, though two small cervical glands just back of the angle of the jaw were enlarged and quite painful on pressure.

On the fifth day of the disease, the eschar was the size of a silver quarter, distinctly umbilicated, and around the margin there developed a secondary ring of small vesicles,

with gradual extension of the tissue-necrosis. During these days the general condition of the patient became steadily worse; complete loss of appetite, feeble and rapid pulse, fever continuing at about 102° F., rising half a degree to a degree in the evening, and on the evening of the sixth day there occurred a well-marked chill, followed by a temperature of 103.8° F., intense headache, and great prostration. The lesion and the general condition of the patient for the succeeding thirty-six hours remained practically unchanged, and until the morning of the ninth day, when the swelling and induration of the infected area began very slowly to subside, and the patient's general condition to improve, though there was slight elevation of temperature to the fourteenth day.

The local treatment consisted of the injection of 30 minims of a seventy-five-per-cent. solution of carbolic acid at various points about the base of the indurated area, as soon as diagnosis was made. The needle was introduced as far as the center of the lesion, and the injection made as it was slowly withdrawn. No toxic



Cover-glass preparation from slough showing (*a*) anthrax bacilli, (*b*) pus-cells with nuclei, and (*c*) free nuclei.
Zeiss' aprochromatic objective, one-twelfth; ocular, six.

symptoms appeared from the carbolic acid. The infected area was frequently cleansed by washing with strong bichlorid of mercury solution, and was kept constantly covered with cloths wet in bichlorid solution 1–500.

The general line of treatment was supportive, consisting of frequent doses of quinin and iron, together with whisky in the form of egg-nog and milk-punch. The administration of strychnia and digitalis was necessary to sustain the action of the heart, which was at all times feeble. The patient made a good recovery, with remarkably little sloughing or scarring, either from the lesion or the carbolic-acid injections. Diagnosis in this case was verified by bacteriological examinations made before radical treatment was begun, and the characteristic bacilli of anthrax were found in a number of preparations.

Cover-glass preparations, stained with methyl blue and mounted in glycerin, were made from the serum which continually oozed from the central eschar, from the semi-purulent contents of the vesicles in the secondary ring, from blood drawn from the margin of the sloughing area, and from the slough itself, the accompanying drawing being made from the latter. In all these preparations, the bacilli of anthrax were found in considerable numbers, being most numerous in the slough, and least so in the blood drawn from the margin of the slough. Examination of blood drawn from within two inches of the base of the indurated area revealed no bacilli, clearly demonstrating an effort on the part of Nature to circumscribe and limit the infection by this wall of indurated tissue; an effort on the success of which depended the life of the patient.

On the third day following the carbolic-acid injections, examinations were made identical with those made at first, and no bacilli were found, proving the efficacy of carbolic acid in the destruction of this, the most tenacious of life of all bacterial organisms. Although the recognition of the spores of anthrax alone in tissue under these circumstances is almost if not quite impossible, it is reasonable to conclude that their destruction was also complete. We may therefore conclude that in carbolic acid, if employed early and in strong solution, we have a safe and efficient means of combating this malignant disease.

MEDICAL PROGRESS.

The Production of Streptococcus-antitoxin by Means of Electricity.—As the result of an experimental investigation conducted at the Institute for Pathological Anatomy of the University of Padua, BONOME and VIOLA (*Centralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten*, 1896, Nos. 22, 23, p. 849) have determined that alternating electric currents of high tension are capable of rendering innocuous most virulent cultures of the *Streptococcus-pyogenes*, without modifying the chemic reaction of the cultures or the form of the parasites. The result is brought about even when the current passes but for a short time, and it is constant. The action of the current takes place only upon the fluid portion of the culture, *i. e.*, upon the dissolved toxins rather than upon the streptococcus. The latter, when inoculated upon new media, develops with its previous rapidity, and retains its pathogenic activities. The streptococcus is capable of preserving its vitality for two weeks in the electrified culture. Under the influence of the current the toxins of the streptococcus are converted into antitoxins, just as antitoxins are produced in the bodies of immunized animals. The antitoxins obtained through the electric current from old cultures of the streptococcus possess great activity, being capable of neutralizing outside the body ten times the lethal dose for rabbits. The antitoxins obtained from recent cultures are weak, because these contain only a small amount of toxins capable of conversion into antitoxins. These antitoxins possess active protective and curative properties with regard to streptococcous-infection in rabbits. They behave like true vaccines, and like the vaccine obtained by heating streptococcous-cultures to between 126° and 150° F., are not entirely innocuous for rabbits, producing a progressive marasmus and at first elevation of temperature. The

antitoxins probably act in the rabbit by stimulating the formation of substances capable of destroying the streptococcus outside of the body by causing degeneration of the streptococci.

An Unusual Cause of Lead-poisoning.—At a recent meeting of the Société de Biologie, CHARCOT (*Compt. rend. hebd. de Séances de la Soc. de Biol.*, 1896, No. 22, p. 639) related the case of a woman, thirty-two years old, employed in the manufacture of artificial flowers, who presented characteristic manifestations of lead-poisoning. There had frequently been colic, with obstinate constipation. Careful examination failed to disclose the existence of a blue line at the margin of the gums, but the mouth was well cared for and the teeth were in good condition. The woman was pale and emaciated. On inquiry it was learned that in her occupation she wrapped the stems of artificial flowers with green paper, often wetting her fingers with the tip of her tongue. An analysis of the paper used disclosed the presence of lead in large proportions. The case was used also to illustrate individual susceptibility to lead-poisoning, as the woman knew of none of her associates who were similarly affected.

A Simple but Successful Treatment of Colles' Fracture.—In the *Archiv für klin. Chirurgie*, vol. liii, p. 336, the results of a simple method of treatment of Colles' fracture of the radius, as carried out in the Königsberg Polyclinic, are given by STORP. This treatment is essentially the same as was advocated many years ago by Sir Astley Cooper, *viz.*, the suspension of the arm by the wrist, the hand being allowed to drop sharply to the ulnar side. Storp insists that attention should be directed especially to the complications of a Colles' fracture, and not to the fracture of the radius. In almost any decently applied apparatus the bone unites rapidly and firmly. On the other hand, the complications, such as rents in the joint-capsule, made by splinters of bone, or openings into the posterior or anterior tendon-sheaths, or injury to the triangular ligament or its attachments should be attended to. In all such cases, if the hand remain too long in splints, organization of blood-clots and the formation of adhesions in joint or tendon-sheath delay complete recovery, or possibly permanently disable the hand. To avoid this, the fingers are now almost universally left free, and massage applied at an early date.

Storp has treated 104 patients in this manner: A strip of rubber-plaster, 2½ inches wide, is wound about the arm just above the wrist-joint. A second piece is placed exactly over the first, a fold being made in it on the radial side, which stands out far enough from the arm to allow a large hole to be made in it. Through this hole a string is passed, and the arm is held high up on the chest, the hand dropping downward toward the ulnar side.

The treatment is at first rather painful, but if the arm is kept high up venous congestion is avoided, and the pain becomes much less. The plaster is removed in ten days and the hand simply placed in a sling, while the patient is advised to use it carefully. In a few of Storp's cases, in which there was extensive hemorrhage, massage was employed. The average duration of treatment was three weeks, while fourteen to eighteen days sufficed in patients under twenty years of age.

The results were exceptionally good. Of the ninety-five cases in which directions were carried out, the arms of ninety-one were completely restored in appearance as well as function; in the other four the functional result was a good one, but there was a slight radial deformity in three cases, and a rather marked radial deformity in the fourth.

Ozena and Its Treatment by Electrolysis.—BAYER concludes an interesting article on the cause and best treatment of ozena (*Münch. med. Wochensch.*, No. 33, 1896) as follows:

A. Ozena is a trophoneurosis consisting of (1) an anomalous secretion of the mucous membrane of the nose, naso-pharynx, and pharynx, whose product serves as a culture medium for a microbe peculiar to ozena, and producing the odor so characteristic of that disease; (2) a disturbance of nutrition, with atrophy of the mucous membrane; (3) a rhinitis, usually at first hypertrophic, which is brought about by the irritation of the secretory products, these acting as foreign bodies. *B.* The best, one might say the specific, treatment of ozena is by electrolysis, which, however, is not absolutely free from danger.

Bayer insists on absolute cleanliness. The careful removal of all crusts and the frequent use of nasal douches of lukewarm water, or mild antiseptic solutions, precede the application of electricity. The positive pole, a copper electrode, is introduced into the nose, and by means of a relatively weak current and oft-repeated treatment, this obstinate disease may be completely cured. He prefers a weak current as being safer than a stronger one, but its therapeutic action is slower.

The action of the electricity is threefold. First, the oxychlorid of copper is set free into the tissues and produces chemical effects there. Secondly, the electric current has been asserted by some to be an active germicide. Thirdly, and upon this the author lays especial weight, by the "deep molecular disturbance," which the current brings about, the nerve-endings are affected, and as a result a trophoneurotic reflex-action is produced, more blood flows to the mucous membrane, the excretion becomes more fluid, and no longer furnishes a medium for the growth of the ozena-microbes. Be the theory as it may, the results of this treatment were in every way satisfactory.

Treatment of Simple Ulcer of the Stomach.—At the recent Congress of Physicians at Hamburg (*Berlin. klin. Woch.*, November 2. 1896), RATJEN expressed himself as dissatisfied with the usual treatment for ulcer of the stomach, such as rest in bed, hot poultices, fluid diet, and bismuth subnitrate and morphin, on the ground that the benefit thus obtained is more apparent than real, and that relapses often occur. He therefore advocates rectal feeding. For about ten days nothing but a little water or bits of ice, or weak brandy and water, is given by the mouth. The patient is kept in bed and poultices are applied. Under these conditions he believes that the shrinking of the stomach and the diminution of its motions, and

the lessening of the secretion of hydrochloric acid favor the rapid cicatrization of the ulcer.

Bimanual Examination of the Bladder.—HENRY MORRIS emphasizes in the *Lancet*, October 31, 1896, the diagnostic value of bimanual examination of the bladder under ether. Naturally, such examination can be more perfectly carried out in the female than in the male, but as digital exploration of the female bladder is a still more satisfactory, and yet entirely safe procedure, it is in the male that bimanual palpation finds its chief place, and especially in those cases where, on account of hemorrhage, a satisfactory systoscopic examination is not possible.

Morris cites three cases, two of papilloma and one of an ulcerated cancer of the bladder, in which, under an anesthetic, with one finger in the rectum and the other hand pressing the previously emptied bladder into the pelvis, he was enabled to make a correct diagnosis. The cancer felt like a small, hard, flat mass about the prostate and a little to one side. The papilloma had a spongy feel. Suprapubic cystotomy was performed in each case. In not one of the three cases had Morris been able to make out anything abnormal by rectal examination alone without anesthesia.

The Bacteriotherapy of Malignant Tumors.—As the outcome of rather extended clinical observation in the surgical clinic of the University of Heidelberg of the result secured in the treatment of inoperable malignant neoplasms with the toxins or with the antidotal serum of the *Streptococcus pyogenes* and the *Bacillus prodigiosus*, PETERSEN (*Archiv. für klin. Chir.*, B. liii, H. 1, p. 184) has arrived at the conclusion that in the treatment of carcinomata either of the methods is entirely without promise, while in the treatment of sarcomata success is only exceptional. Against this slight and dubious advantage must be placed the dangers of intoxication, as well as those of stimulation of the new growth to increased activity.

THERAPEUTIC NOTES.

Dysmenorrhea with Menorrhagia.

℞ Tr. hydrastis canaden. } aa . grm. xv (℥ iv)
Tr. viburnum prunifol. }
M. and sig. 10 drops every two hours, in sweetened water. HUCHARD.

Phthisis Pulmonalis.

℞ Iodoform } aa . . . grm. v (gr. lxxv)
Creosote }
Turpentine } aa . . grm. ii (gr. xxx)
Ac. benzoic }
Powd. marshmallow } aa . grm. vi (℥ iss)
Magnesia }
Make 100 pills; 4 to 10 a day. LEGROUX.

For Leprosy, BROCQ is in the habit of administering oil of chaulmoogra, internally. Five drops are given morning and evening, as a commencing dose, either before or after eating. The dose and frequency of taking is gradually increased until the patient is taking from 120 to 200 drops a day, usually in four doses. This large quantity is continued for three days, and excellent results are said to follow its use. The oil may be given in hot tea or coffee, in an infusion of peppermint, in capsules, or in unleavened bread.

Treatment of Acute Tonsillitis.—The following plan of procedure is recommended by GRASSET (*Gaz. hebdom. de Med. et de Chirurgie*, 1896, No. 66) in the treatment of acute tonsillitis:

Milk is given every two hours, day and night.

Every two hours a teaspoonful of the following mixture is to be administered:

℞ Potassium chlorate . . 16 grains
Water . . . . . 1 fluid ounce

During the day the throat should be gargled frequently with a hot infusion, or with the following combination:

℞ Sodium naphtholate . . 5 grains
Cocain hydrochlorate . . 1½ grains
Sirup . . . . . 1 fluid ounce

The throat should be painted three or four times during the day with

℞ Glycerin . . . . 4½ grains
Borax . . . . . 1 dram

If the local condition should become alarming silver nitrate, 1–10, should be applied topically, and the throat sprayed with carbolized water or a solution of phenosalyl, 1–100. If the pain is severe, especially on deglutition, the throat should be painted three or four times a day with

℞ Cocain hydrochlorate . . 8 grains
Glycerin . . . . 1 fluid ounce

The treatment may be begun with ipecac if this drug have not already been given. The patient should be isolated and separated, especially from children and those susceptible to tonsillitis.

The latter may receive by spray, morning and night, two fluidrams of the following solution:

℞ Cocain hydrochlorate } each . 7½ grains
Carbolic acid }
Glycerin . . . . 6 fluidrams
Water, sufficient to make . 1 pint

Or the throat may be painted daily with

℞ Tincture of iodin } . . equal parts
Glycerin }

By the mouth sulphur and arsenic are alternated from month to month. For twenty days a half-glass of some sulphurous water is taken each morning on an empty stomach. This is also used as a gargle. The patient then rests for ten days. At the expiration of this time he takes twice daily, for the next twenty days, a tablespoonful of

℞ Sodium arsenate . . . 1½ grains
Distilled water . . . 10 fluid ounces

Then again the patient rests for ten days, and the alternation is thus kept up. Tobacco and alcohol are to be abstained from. Chilling, and association with cases of tonsillitis are to be avoided. If possible, a visit should be made annually to some sulphur resort. In case of frequent recurrence of attacks, recourse should be had to the galvano-cautery, or amygdalotomy, according to the size of the tonsils.

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SATURDAY, DECEMBER 19, 1896.

DIPHTHERIA-ANTITOXIN — INVESTIGATION BY THE MEDICAL NEWS.

As a purely scientific enterprise, the MEDICAL NEWS has undertaken during the past few months an investigation to determine the quality of the diphtheria-antitoxin that was being supplied to physicians in different parts of the country. The results of the investigation are set forth in this issue of the NEWS.

What position antitoxin shall occupy as a therapeutic agent is the great question of the hour. Statistics have been gathered and collective investigations have been undertaken to settle it. The fact must be recognized, however, that the value of these statistics rests primarily upon the quality of the serum used. In undertaking this investigation, therefore, the NEWS felt that it was laying hold of the very root of the matter. And out of this was to come an explanation of the great diversity of results experienced by different practitioners. In this we were not mistaken, as the accompanying report conclusively shows. Indeed, the prominent fact brought out by the investigation is the striking irregularity exhibited by the different preparations. Two or three of the samples were so feeble in antitoxic properties that they were practically worthless for therapeutic purposes. More of them however contained greater antitoxic properties than fell below the strength stated upon the label. But for statistical purposes, and as a basis upon which to establish a system of accurate dosage, this is certainly to be deprecated. In determining also how great a part the antitoxin plays in producing unfortunate sequelæ this variation in strength renders statistics utterly void. It is also of interest to note that in some of the samples the strength of the antitoxin was not given upon the labels, so that the physician was necessarily in the dark regarding the strength of the preparation he was using.

One of the most difficult problems in connection with serum-therapy from the onset has been the question of accurate dosage. If to the lack of knowledge regarding the amount required by the patient, uncertainty as to the strength of the antitoxin used must be added, the general practitioner will be hopelessly confused. This, however, is not a necessary condition nor need it be a permanent one, although it now adds greatly to the difficulties that exist in the practical application of this remedy.

It is well known that serum drawn from different horses varies greatly in its antitoxic properties, and it is only by the greatest care that the strength of the serum can be accurately ascertained. Each lot must be tested for itself. It is probably in this department of the work that carelessness has existed. These tests must be made by one of great experience and with great care, otherwise they are of little value. The profession can justly demand that each and every package of serum sent out of a laboratory shall not only bear the personal guarantee of an expert, but that this shall be something more than a formality.

It should be understood by the manufacturers of antitoxin that what the medical profession wants is not a cheap product, but one that is absolutely reliable. Every one knows that to produce a standard antitoxin there is required expert knowledge, the expenditure of a considerable amount of time, and the greatest care. All of these naturally increase the cost of the remedy; but the physician and the public will cheerfully bear such expense if they can be certain of the quality of the article.

How the present condition is to be remedied in a country like ours, where there are no governmental

restrictions whatever upon the manufacture and sale of products like antitoxin, is difficult to say. The only means which the average physician has of knowing what is being furnished him in the way of antitoxin, is by just such an investigation as this which the NEWS has inaugurated, and it is our purpose to repeat this from time to time, and give our readers the benefit of it.

So many sources of error exist in the method now employed for testing serum, that unless they can be eliminated some new method must be devised. It has recently been discovered that under the influence of the electric current the toxins of the streptococcus are converted into antitoxins. Is it not possible that out of some such suggestion a method of determining the strength of serum by this wonderful agent may be devised?

The well-known ability and professional standing of Dr. Abbott are a sufficient guarantee that the work assigned to him in this investigation has been done with care and thoroughness, and the thanks of the NEWS are due him for the scientific manner in which he has performed his task. The editor also desires to express his appreciation of the generous spirit shown by the publishers, Messrs. Lea Bros. & Co., in making possible this investigation, and the cordial support he has received at their hands throughout its entire prosecution.

THE PASSING OF THE PHYSICIAN.

IT needs no prophetic eye to see the extinction awaiting the practicing physician, using the term in contradistinction to the hospital or dispensary physician. Surgeons, aside from professors and hospital and dispensary surgeons, are already extinct. The drag-nets of ambulance, dispensary, clinic, and hospital, have secured such a "corner" in surgery that no man outside the chosen few can make a living.

What has occurred in surgery is now occurring in medicine. No patient able to walk or ride in a cab need pay a cent for medicine or treatment. If slightly hesitating on the brink, the mælstrom of dispensary, clinic, or hospital, will suck him into its hungry and capacious maw, from which nothing is ever vomited back but statistics. If too sick to walk or ride in a cab, an ambulance waits to carry him tenderly, and without shock or exposure, to sumptuous hospital apartments, built possibly by misused funds donated to the hospital for charity. Ambulating and portable sick people being thus provided for, there remains only a small class of the desperately sick whose removal might mean death. To provide for these cases it is only necessary to slightly enlarge the staff of out-door visiting physicians already attached to our dispensaries and hospitals, and *Presto!* the thing is done! And the weary and struggling outside general practitioner can go home, shut himself up with his emaciated wife and starving children, and turn on the unlighted gas.

These words are not written in jest, but embody the sober thoughts of one who has for twenty years watched the growth, abuse, and degradation of medical charity, hand in hand with which have increased the hardships of the general profession. Let the incredulous glance at a few figures.[1] In the year 1893, 75,094 patients were treated in the hospitals of New York City; during the same year 680,789 patients were treated at clinics, dispensaries, and out-patient hospitals. If we make a liberal allowance for reduplication, there will still remain a stupendous and staggering array of figures.

In the same year there were in the city 2842 "regular" practitioners of medicine. The number of "Homeopaths," Eclectics, "root and herbs," and quacks, was not obtainable, but it probably nearly equaled the list in the "Medical Register." Putting a very liberal estimate upon the number of people trying to get a living out of the pursuit of medicine, they numbered in that year probably 4000 souls. The population of the city was about 1,800,000, which would give each medical man or woman a *clientèle* of about 450, *provided* an equal distribution was made. Such, however, has not been the case. The professors, and the hospital and dispensary physicians get about one-half, the clinic, the hospital, and the dispensary the other half, and the struggling outsider gets the rest.

The remedy? None is available. Experience has repeatedly shown us that *unanimous* and *persistent* action on the part of doctors is impossible. Let a board of governors of any hospital or dispensary dismiss its attending staff because of a meek and proper assertion of rights, and however flagrant and arbitrary the action, other doctors will fall over each

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[1] The statistics of Dr. Landon Carter Gray in the recent issue of the MEDICAL NEWS are more recent than these, and confirm the belief that the condition is growing worse.

other in their haste to thrust their necks into the apparently welcome yoke.

The average doctor is servile and shortsighted to an extraordinary degree, bent not only upon his own destruction, but also upon endangering the entire fabric of a noble and benevolent profession. Even plumbers and members of other trade-unions protect themselves by curtailing apprenticeship and by keeping out ignorant cut-throats. Why shouldn't doctors? But it is too late! Even now as we near the vortex of muddy competition, and as we are about to go down for the last time, we must acknowledge a bitter justice in our fate; for years of neutrality and final servility have taught pompous laymen, who pose as public benefactors and philanthropists, that doctors will stand any amount of robbery and degradation to secure and keep a hospital or dispensary position.

THE FUNCTION OF THE PITUITARY BODY.

THERE is always a special fascination about endeavors to penetrate into hitherto unknown territory. Whether it be Darkest Africa, the deepest recesses of the thyroid, or the innermost stroma of the adrenals, its very mystery lends a charm to the investigation. Ten or fifteen years ago, the three sphinxes whose riddles the anatomist-physiologist needs must answer were the tonsil, the thyroid, and the spleen. Their massive fronts have, however, been attacked with such vigor and effect that the first two can scarcely be said to be puzzles any longer, while the third is pretty certainly known to be either the cradle or the grave of the red blood-cells, and is probably both. The researches and dramatically fascinating discoveries of Metschnikoff have prepared us to appreciate the value of the tonsils as breeders of leucocytes, to "health-officer" the upper part of the alimentary tract after the fashion of Peyer's patches in the lower. This also beautifully explains the frequency and certainty with which they are to be found in the very front rank of every brush with the enemy in these regions, especially if he happens to be that Apache of the sewers, the Klebs-Loeffler bacillus.

The discovery of the possession of protective, trophic, and other similar properties by the blood-serum, and the recognition of the nature of myxedema and goiter, together have led us to understand the thyroid as the great "organizer" of the body-tissues. Through its metabolic action upon the blood-plasma, it keeps all the tissues constantly stimulated to their highest pitch of effort, and prevents their relapsing to the embryonic or myxoid state, which they promptly proceed to do when its influence is withdrawn. Myxedema would appear to be a reversion of the fixed tissues to the ameboid stage.

But we need not, like Alexander, sigh for more worlds to conquer, for another Africa has already loudly challenged the attention of biological explorers—the so-called pituitary body, or *hypophysis cerebri*. Here is absolutely virgin soil for the physiologist. Until within the last ten years, no suggestion even of its function had been made, save the infantile one embodied in the absurd name it bears—that it secreted the nasal mucus, although its sister enlargement higher up in the same tract, the pineal gland, had been thought worthy by Descartes to be selected as the anatomical home of the soul.

As a rule, the true pioneer of medical progress is the clinician, and not the laboratory worker. The first ray of light in this region came from pathology, and not from anatomy or biology. When Souza-Leite announced in 1890 that the pituitary body was markedly enlarged in most cases of the disease described and named by Pierre Marie and himself several years before as acromegaly, he first gave a standing to the question at the head of this article. Hitherto the gland had been almost unanimously regarded as a purely vestigial structure of most interesting and puzzling origin and history, but of no present value whatever to the organism.

For some time after this report, even the majority of pathologists seemed inclined to regard its enlargement as a mere coincidence, or, at most, one of the symptoms of the disease, but when, in 1892, Tamburrini, Brissaud, and Taruffi almost simultaneously reported a similar condition in certain cases of gigantism, this position was no longer tenable. And when it was further shown on the one hand by microscopic examination that the enlargement was a true hypertrophy of the gland substance, and not a mere interstitial or adventitious outgrowth; and, on the other, that in at least three cases marked involvement of the body by neoplasms produced no acromegalic symptoms whatever; and, finally, in 1895, that extirpation of the pituitary in young kittens and puppies was promptly followed by muscular weak-

ness, falling temperature, marasmus, and death; the possibility that the gland still exerted an active influence upon the metabolism of the body was raised to the rank of a high probability. As to the nature of this influence, we are almost completely in the dark, except that it appears to be exerted through the medium of an "internal secretion," like that of the thyroid, which acts chiefly upon the trophic fibers of the peripheral nervous system. The attention of neurologists in particular and of clinicians in general having been fairly aroused, new facts bearing upon the problem began to be contributed from every hand. Cases of fatal acromegaly in giants were reported by Virchow, Dana, the writer, and others. At the same time the skeletons of giants preserved in museums were investigated, that of the celebrated "Irish Giant," Cornelius McGrath, was shown in a masterly and elaborate monograph by Cunningham to present unmistakable traces of acromegaly, including a huge pituitary fossa, while a similar condition was reported from Reggio by Taruffi in the skeleton of a giant who had died in 1808. The records of giants for two hundred years back have been carefully examined, and a number of living ones have been studied, with the result that it is safe to say that from forty to sixty per cent. of these huge creatures are undoubted cases of acromegaly. While from the fact that, out of over one hundred cases on record, only one lived to old age, very few to middle life, and a majority died before the age of thirty, and that many deaths were due to a general failure of the vital powers or some trivial intercurrent disease imposed upon this, it is reasonable to conclude that eighty per cent. of giants are the subjects either of acromegaly or some closely allied trophic disorder. Myth and popular impression to the contrary notwithstanding, giants are a short-lived, feeble-minded, weak-bodied race, shambling in their movements, and of the mildest of dispositions. They are occasionally possessed of great muscular power, but this seldom lasts more than a few years, just as is also seen in some cases of acromegaly. The position which appears to us best to harmonize these facts is that acromegaly and gigantism are similar, if not identical, disturbances of pituitary metabolism, the one beginning in early life before the full stature has been reached, and producing comparatively symmetrical results extending over a considerable period, the other developing after maturity and expending its "overgrowth" force at the points of least resistance to growth—the hands, feet, nose, and lower jaw. In both, the essential process is a more or less rapid overgrowth, reaching a definite limit and soon followed by correspondingly rapid decay. The ultimate result is the same in both, the situation of the outgrowth (extremities and distal portions of appendicular skeleton generally) is strikingly similar; there is the same disturbance of the sexual functions, in fact, almost the only differences between them are in the pressure-symptoms (headache, hemianopia) and more rapid course of the adult form.

WOODS HUTCHINSON, M.D.

ECHOES AND NEWS.

An Appropriation for Examining Surgeons.—The present House of Representatives has passed the pension appropriation bill, which includes the handsome sum of $700,000 for the fees of examining surgeons during the fiscal year.

Statistics of Suicides.—M. Pawloski states that Europe furnishes 25,000 suicides annually. Last year there were 8226 in France alone. The largest percentage of deaths from this cause occurs between the ages of fifty and sixty years.

Mount Vernon Hospital Reopened.—A number of physicians in Mount Vernon, N. Y., have practically decided to reopen the local hospital, which had been closed from lack of funds. January 1st is spoken of as the date for beginning the work anew. Patients without means are to be treated free of charge.

Substantial Sympathy.—The sympathy felt for Dr. Cullingworth by the profession has been shown in a very practical manner. A fund to assist him in defraying the heavy expenses of his recent trial has been established, and the prompt contributions are strong evidences of the interest taken in his vindication. Within the first forty-eight hours over £500 were subscribed.

Death of Dr. Déclat.—In the death of Dr. Déclat, France has lost one of her most distinguished surgeons. He was the author of several treatises on antiseptic methods of treatment, and his name is closely associated with the advocacy of carbolic acid in surgery. After a long and successful professional career in Paris Dr. Déclat retired to Nice, where his death recently occurred.

Increased Salaries.—The Lunacy Commissioners of New York, in accordance with the provisions of the last Legislature, have experienced the pleasant sensation of having their salaries advanced between thirty and forty per cent. In future their entire time will be occupied with the duties pertaining to their offices. Civil-service

methods will hereafter be employed by them in certain departments under their control.

The Question of Medical Bulletins.—The *Medical Press and Circular* commends with highest praise the course pursued by Mr. Herbert Allingham and Dr. Scott in withholding information from reporters of the lay press, regarding the operation recently performed upon Dr. Jameson, when urgent means were used to induce them to comply with this feature of modern journalism. A number of days elapsed before it was generally known who had performed the operation, so carefully did these gentlemen guard their secret. This example of true professional modesty is recommended with special emphasis to the attention of the American profession, among whom a lamentable tendency to use the demands of public curiosity as an excuse for advertising themselves upon unnecessary bulletin boards is frequently observed.

Obituary.—Dr. Leonard J. Sanford, one of the most eminent physicians of Connecticut and a professor in the medical department of Yale University, died at New Haven, December 1st. He had been seriously ill for about two weeks with heart trouble, which perplexed the attending physicians and the patient himself, who watched with professional interest his symptoms and his condition from time to time. Dr. Sanford was born in New Haven on November 8, 1833. He obtained his education largely in his native city, but was graduated from the Jefferson Medical College at Philadelphia in March, 1854. He received the honorary degree of M.A. from Yale in July, 1858, and was appointed professor of anatomy and physiology at Yale in May, 1863. Since that time he had given an annual course of lectures on these subjects, and also upon the subject of hygiene in the medical and other departments of the university. Since 1855 he had been a practising physician in New Haven.

The New Operating Building at the Boston City Hospital.—The new surgical operating building of the Boston City Hospital is finished, and the surgical operating service has been transferred from the old building to the new. The first operation was performed here Thanksgiving Day by Dr. David W. Cheever, senior visiting surgeon, in the presence of the surgical, visiting, and house staffs. While giving some reminiscences in connection with the hospital which were of interest to those who are now or have been connected with it, Dr. Cheever remarked: "Anesthesia, clinical instruction, and asepsis would seem to mark the three epochs of our hospital, and I often wonder, inasmuch as thirty years have brought to pass all these improvements, what surgery will be thirty years hence. It seems to me it has reached its largest limit of operations, and that operations henceforward will probably decrease, because I think that the progress of bacteriology will enable us to prevent a good many diseases, and will anticipate the surgeon by curing cases before they reach his hands."—*Boston Med. and Surg. Journ.*

Bacterial Diagnostic Work in London will Retrograde.—On January 1, 1897, the laboratory work for diagnostic purposes in diphtheria of the London Asylums Board will be discontinued. Whatever examinations of that kind that may thereafter be made will be conducted by the medical men of the several hospitals. The laboratory of the Royal Colleges, that has been the scene of the good work of the past two years for the benefit of the public, will be abandoned by the Board, and the services of Dr. Sims Woodhead will cease in the direction of diphtherial work. The *Lancet* opines that the Board, in taking this backward step, has not been actuated by any preëminent desire for the welfare of the community, and expresses disappointment that the work done in 1896 cannot be extended and amplified to something like the scale upon which the like work is carried on in the United States and in certain parts of the Continent. It further hints that there has been some clashing of interests between the Board and the Royal Colleges, which might better have been placated or overborne on behalf of the suffering general public.

The Tallerman-Sheffield Hot-air Apparatus.—An opportunity was afforded the members of the medical profession to witness the first public demonstration of the Tallerman-Sheffield Patent Localized Hot-air Apparatus at the Hospital for Ruptured and Crippled, New York, December 7th. A number of prominent general practitioners and specialists were present, and after a short introductory by Dr. Gibney, in which he referred to the several cases experimented on in the hospital during the preceding week, the inventor, an Englishman, Mr. Tallerman—a retired merchant (?)—endeavored to describe, in a manner not eminently scientific, the mechanism of the apparatus. Two patients, an acute knee-joint case and a case of chronic sciatica, were put in the machines and kept there for a period of forty to fifty minutes at a temperature of 220° to 240° F. The body temperature was but slightly raised, and very little was really accomplished by the treatment, though much has been claimed for it as a pain-relieving agent. Dr. Gibney, however, showed some children who had been slightly benefited by the repeated "sittings," and while the apparatus bears an English name it is practically an old method—dry heat followed by gentle massage locally—which many doctors have employed for years. On the whole the demonstration was rather disappointing, but some fair results are claimed for it in England in cases of acute rheumatism, lumbago, and neuralgia.

The League Island Navy Yard.—The exposure made by the NEWS, after a careful investigation of the quarters provided for the men at the League Island Navy Yard has been instrumental in calling the attention of the officials to the cause of the unhygienic and insanitary surroundings which exist there. The recent annual report of the post-surgeon, Dr. Wm. H. Rush, to the Navy Department affirms the worst statements made by the NEWS regarding these conditions, and confirms the assurance that the source of disease and contagion could not be ascribed to the Philadelphia water. He says: "There is no sufficient water-supply at this yard. At present, for drinking and cooking purposes, rainwater is used, and in seasons of little rain great economy is required in its use."

For flushing and other cleaning purposes, Delaware River water is supplied. The latter is daily pumped into a large tank in the attics of the houses. The tanks are wooden, unlined, and leak at the joints, and are intentionally overflowed in order to fill an iron tank alongside of the houses used for outdoor purposes, so that in the large leaden troughs under the tanks there is more or less water evaporated, augmenting that from the exposed surface of the tanks. Two cases of sickness have originated in one of the houses, which I attribute to this source. One case developed into typhoid fever. Inquiry and rumor have shown the existence of diarrheal affections among the workmen employed on the pumps along the river front, who are compelled to use the rainwater for all purposes. Cases of typhoid fever have developed among them."

SPECIAL ARTICLE.

THE QUALITY OF ANTITOXIN USED IN AMERICA.

AN INVESTIGATION BY THE MEDICAL NEWS, EMBRACING THE RESULTS OF CAREFUL TESTS APPLIED TO THE SAMPLES OF THE LEADING MANUFACTURERS, INCLUDING MUNICIPALITIES AND PRIVATE ENTERPRISES.

THE most important contribution that has been made to the subject of serum-therapeutics, especially in its application to diphtheria, was the Report[1] of the Collective Investigation Committee of the American Pediatric Society, which appeared last summer. This report was awaited with unusual interest, and proved a great surprise to the friends, as well as to the opponents, of serum-therapy. One of the most striking features developed by the investigation was the widespread employment of the antitoxin, and the number of physicians who were using it. The general inference to be drawn from the report, as a whole, was that the antitoxin treatment of diphtheria had proved so efficient that there was no longer any doubt of its permanency as a therapeutic measure; and yet every one who carefully analyzed its details was possessed of the conviction that it bore two pronounced elements of uncertainty. The first had reference to the amount of the dose, and the second, which is still more important, was a doubt as to the quality of the serum. When over six hundred physicians in private practice are making use of a therapeutic agent, the quality of that agent is of the supremest importance.

It therefore occurred to the MEDICAL NEWS that an investigation into the quality of the various serums most extensively used in the large cities of the country, would be a fitting supplement to the Collective Investigation Report, and would render to the cause of serum-therapy, to the army of physicians who were making use of this agent, and, indeed, to humanity at large the greatest possible service.

[1] See MEDICAL NEWS, July 4th, 1896.

METHODS OF SECURING SAMPLES.

In order that the investigation might be conducted with absolute impartiality, samples of antitoxin were procured in the open markets in accordance with the method adopted by any physician intending to use the remedy in his private practice. These samples were supplied by doctors residing in different localities, with the understanding that each should procure the brand of serum most extensively used in his respective city. Nineteen specimens were thus obtained; six of these were the output of two municipal laboratories, *i.e.*, they were board-of-health serums of New York and Philadelphia. The products in each case bore duplicate labels, except as to the dates of manufacture. Thirteen came from private manufacturers in this country and abroad, representing the following firms: Institute Pasteur de Lille, Schering, Parke, Davis & Co., Institute Pasteur of Paris, H. K. Mulford Co., Buffalo Antitoxic Co., Roux Institute Pasteur of Paris, Behring, and the New York Pasteur Institute (Gibier). These were procured from the following cities: Montreal, New York, Philadelphia, New Orleans, Buffalo, and Cleveland. The serum issued by the Board of Health in Chicago is the product of the laboratory of the New York Board of Health, and, therefore, no samples from that city were examined. No serum was secured from Boston, the Massachusetts State Board of Health, when appealed to, deciding "not to submit a sample for the reason that the antitoxin is not for sale, and that all necessary questions relating to it are published in the reports of the board when ripe for it."

It is therefore evident that the work was undertaken without the possibility of favoritism or prejudice, and that the specimens were procured under conditions corresponding as closely as possible with those met by the practitioner when called upon to obtain it for immediate administration.

HOW THE SAMPLES WERE PREPARED FOR THE TEST.

The samples were sent direct to the New York office of the MEDICAL NEWS. Upon their arrival the external wrappers, and the labels on the bottles were carefully removed, pasted in a book, and numbered 1, 2, 3, etc., the corresponding figures being pasted upon the bottles, so that there remained no means of identifying them except by the number attached. These bottles were then forwarded to Professor A. C. Abbott at the Laboratory of Hygiene, University of Pennsylvania, at Philadelphia.

In obtaining the service of so distinguished a bacteriologist as Dr. Abbott, we feel that the most perfect confidence in the scientific accuracy of this report is secured.

That our readers may have a definite idea of the

procedure followed in testing these samples, we preface Dr. Abbott's report with the following explanation:

METHOD OF TESTING A SAMPLE OF ANTITOXIN OF UNKNOWN STRENGTH.

First, a guinea-pig weighing about 250 grams is injected with the amount of toxin which we know from previous experience to be probably the fatal dose. Six other guinea-pigs are then described and weighed. Into each of six separate flasks is placed ten times the amount of toxin injected into the original or control-pig. The problem is to determine how much of the preparation of antitoxic serum to be tested will protect a 250-gram pig from ten times the fatal dose of toxin. We therefore mix with the toxin in each one of these six flasks different amounts of antitoxin, beginning with No. 1, an amount of antitoxin so large that we feel sure that if any antitoxin whatever is present in the serum, it will save the life of the guinea-pig into which it shall be injected; and No. 6 receiving an amount of serum so small that we feel sure that it will probably contain an insufficient amount of antitoxin to protect the guinea-pig into which it shall be injected. The other four guinea-pigs will receive amounts of serum varying between these two limits. If now we find, for instance, that pigs which received $\frac{1}{100}$ of a c.cm. of a serum and larger quantities live, and those receiving smaller quantities die, we know that $\frac{1}{100}$ of a c.cm. was sufficient to protect the life of the guinea-pig from the fatal effects of ten times the mortal dose of toxin. That is, this serum contains ten or more units of antitoxin in each c.cm. If now the pig shall receive the next smaller dose of antitoxin ($\frac{1}{200}$ of a c.cm. of antitoxin) and die, we know from this first experiment that this antitoxin contained more than ten units and less than twenty units in each c.cm. If we wish to test the serum accurately, we would now take a new batch of five guinea-pigs, giving one a dose of toxin which a week before proved to be the fatal dose; describing and weighing again the other four pigs, we would add to each of the four flasks a quantity of toxin ten times the amount fatal to the 250-gram guinea-pig, and add to the toxin in flask No. 1, $\frac{1}{120}$ of a c.cm. of serum; to flask No. 2, $\frac{1}{140}$; to flask No. 3, $\frac{1}{160}$; to flask No. 4, $\frac{1}{180}$. If now we find that the guinea-pig receiving $\frac{1}{140}$ of a c.cm. of serum lives, and the pig receiving $\frac{1}{160}$ dies, we know that this serum contains between fourteen and sixteen units in each c.cm. This would be as accurately measured as would ever be necessary. In both these experiments it is understood that the control-pig, that is, the pig receiving the supposed fatal dose of toxin, died from the toxin within three weeks of the date of the injection.

BACTERIOLOGICAL REPORT[1] OF A. C. ABBOTT, M.D. (PROFESSOR OF HYGIENE IN THE UNIVERSITY OF PENNSYLVANIA), AND O. P. PHILLIPS, PH.M. (THOMAS SCOTT FELLOW OF HYGIENE, UNIVERSITY OF PENNSYLVANIA).

DURING the early autumn of the present year we received a communication from the Editor of the MEDICAL NEWS calling attention to the discrepancy that is observed in the results of the therapeutic use of diphtheria antitoxin in this country, and suggesting the possibility of this being due to lack of uniformity in the strengths of the various preparations for sale by American dealers. He requested us to undertake the testing of samples of serums from the different makers from whom our supplies are obtained. This we consented to do on the conditions that the samples be obtained by him, or by an agent, in the open market, without the dealers' knowledge of the use to which they were to be put; that the labels be removed, the bottles be designated by a number, and shipped to this laboratory, a careful record being kept by the Editor of the NEWS as to the identity of the numbered bottles. This precaution we thought wise, in order to eliminate any prejudices on our part in favor of, or opposed to, serums from particular sources.

The results of our investigations, that are here presented in tabulated form, refer to the serums by number, in the order that they came into our hands. We are not aware of their source in a single instance. The interpretation of the numbers by which we designate the serums will be appended to this article by the Editor of the MEDICAL NEWS, for whom these tests were made.

The method employed in determining the antitoxic values of the several samples is that of Ehrlich, Kossel, and Wassermann, and the protective values of the serums are expressed in terms corresponding to their standard, *viz.*, a serum of such strength that one-tenth c.cm. fully protects a guinea-pig against ten times the minimum fatal dose of diphtheria toxin is a "normal serum," and one cubic centimeter of such a serum contains an "immunizing unit." Serums of such strength, therefore, that 0.01 and 0.001 c.cm., have the same effect as 0.1 c.cm. of a normal serum, are ten and one hundred times as strong as a normal serum, *i.e.*, contain ten and one hundred immunizing units respectively per c.c.m.

On this basis, nineteen different samples have been tested by us, with the results given in Table I.

From a perusal of this table, it will be seen that the majority of the samples exhibit the average required strength; that several, *viz.*, Nos. 1, 2, 7, 14, were unusually rich in protective substances, while

[1] From the Laboratory of Hygiene, University of Pennsylvania.

in only a very few samples, Nos. 9, 11, 15, was there a relative deficiency of antitoxic properties.

In one or two instances the figures given for the value of a sample do not, in all probability, represent the *highest* limit of protection possessed by these

TABLE I.

Serum number.	Times tested.	Immunizing units per c.cm.	No. of c.cm. of serum in original flask.	Total No. of immunizing units each flask.
1.....	12	350	10	3500.
2.....	14	350	9.9	3465.
3.....	6	150	11.2	1680.
4.....	10	250[1]	2.8	700.[1]
5.....	6	70	9.25	647.5
6.....	6	150	9.2	1380.
7.....	14	350	18.4	6440.
8.....	6	150	4.2	630.
9.....	7	50	3.55	177.5
10.....	5	100	9.7	970.
11.....	7	Less than 20	3.6	Less than 72
12.....	4	100	9.7	970.
13.....	7	100	3.45	345.
14.....	13	350	9.1	3185.
15.....	8	Less than 50	8.2	Less than 410
16.....	8	70	9.	630.
17.....	4	100	9.7	970.
18.....	4	100	9.1	910.
19.....	10	200	9.3	1860.

serums; this refers only to those samples that proved to be of unusual strength. On the other hand, the samples shown to be so poor in antitoxin as to represent but a very low multiple of a normal serum, were eliminated after tests that to us demonstrated their comparative uselessness for therapeutic purposes. The figures given for the balance are those at which protection was absolute.

This closes Dr. Abbott's report.

In order that a comparison may be made between the actual strength of the various samples as shown above and the advertised strength as indicated on the labels, we append Table II.

TABLE II.

Serum Number.	Immunizing Units per c.cm. Claimed.	Number of c.cm. of Serum in Original Flask. Claimed.	Total Number of Immunizing Units in each Flask. Claimed.
1....	50	Not stated.	Not stated.
2....	150	10	1500
3....	Not stated.	Not stated.	1500
4....	Not stated.	Not stated.	1500
5....	100	10	1000
6....	100	10	1000
7....	"Dose 5 to 30 c.cm."	20	Not stated.
8....	"Dose 5 to 20 c.cm."	5	Not stated.
9....	Not stated.	Not stated.	1000
10....	Not stated.	10	Not stated.
11....	Not stated.	Not stated.	1000
12....	Not stated.	10	Not stated.
13....	100	5	500
14....	Not stated.	Not stated.	600
15....	Not stated.	Not stated.	1500
16....	20 "estimated."	10	200
17....	100	10	1000
18....	100+	10	1000+
19....	100	10	1000

[1] The serum in flask No. 4 was exhausted before this test could be carried higher.

A comparison of this table with the preceding one shows a very great discrepancy in some instances in the actual strength of the sample and its advertised strength. Not only that, but samples from the same manufacturer purchased in different markets at the same and different dates show a wide variation. For instance, samples Nos. 1 and 4 both came from one laboratory and were procured at the same time; samples Nos. 5 and 6 came from one laboratory at one time and bore the same date; samples Nos. 9, 11 and 14 all came from one laboratory. Nos. 9 and 11 were purchased in New Orleans and No. 14 in Cleveland. Nos. 13 and 19 came from one laboratory also.

CAUSES OF VARIATION AFTER SERUM HAS BEEN TESTED AND BOTTLED.

Practically it may be said that some samples of serum are found to retain their strength absolutely for periods of from three to twelve months. Other samples are found to gradually lose their strength, so that at the end of three or six months they may contain but about two-thirds of the original strength, or two-thirds the amount of antitoxin units. This does not seem to depend entirely upon the preservative used. The ordinary preservatives are camphor, carbolic acid, and tricresol. Variations have occurred with all of these three substances.

The value of the antitoxin unit is estimated entirely upon the reaction of guinea-pigs. These animals though fairly uniform do vary within considerable limits. It is, therefore, possible that in a series of tests the variation in the susceptibility of different batches of guinea-pigs may be great enough to make quite a variation in the standard; that is, for example, one guinea-pig may require one-tenth more than another guinea-pig for a fatal dose. If the stronger guinea-pig be used as a test the antitoxin sample tested would contain one-tenth less number of antitoxin units than the same sample tested on the other guinea-pig, which was weaker and required one-tenth smaller amount of toxin to kill it.

Different manufacturers vary in their ideas of the proper number of units to place in the different grades. Recognizing the fact that serums may gradually lose in strength under various conditions, and believing that a larger number of antitoxin units is absolutely harmless, some manufacturers insert even as many as twice the number of units which they represent to be present upon their labels. Others believe it more accurate to put in only about so many more units as they expect the serum to deteriorate within the time during which they expect it to be used.

Another cause of variation in the strength of the different preparations of antitoxins is that the various preservatives used cause a marked deterioration in the antitoxins. It is necessary, therefore, to always test the antitoxins after the addition of the preservative in order to know the number of units present in a completed and bottled preparation.

It is apparent that the difficulties to be surmounted before serum antitoxin can claim a place among the established reliable therapeutic agents are still very great. But when an exact system of dosage shall have been established, and when serum of a uniform standard strength shall always be at hand, the great obstacles in the way of its complete acceptance will be eliminated.

THE USE OF ANTITOXIC SERUM IN THE TREATMENT OF DIPHTHERIA UNDER THE SUPERVISION OF THE NEW YORK CITY HEALTH DEPARTMENT, WITH A RESUME OF THE PUBLISHED REPORTS ON THIS SUBJECT.

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AND
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(Continued from page 683.)

WITH a view to a more complete study of the fatal cases of diphtheria occurring in New York during the last few months, a letter has been addressed to every physician who reported a death from diphtheria or croup, asking for information as to whether antitoxin was employed in the case, and if so, on what day of the disease it was administered, and what was the condition of the patient at the time of administration. Personal observations on the subject were also requested.

Information has been received, between May 7 and November 1, 1896, from 306 physicians, with regard to 336 fatal cases of diphtheria reported to the Board of Health—124, or thirty-seven per cent. of these, were reported as treated with antitoxin, and 212, or sixty-three per cent., were reported as treated without antitoxin. The total number of deaths from diphtheria and croup reported during this period was 658. There were, therefore, 322 deaths with regard to which no information was received in response to the letter of inquiry.

Of the 124 fatal cases treated with antitoxin, 41, or thirty-three per cent., were reported as moribund or hopeless at the time of injection, or as dying within twenty-four hours after the first injection, and hence the antitoxin could not have been expected to have any effect; 33 cases, or twenty-six per cent., were injected on the fifth day of the disease, or later, when the remedy has relatively little value; 29 cases, or twenty-three per cent., were complicated with sepsis, scarlet fever, measles, bronchopneumonia—notably bad cases; and 13 cases, or ten and one-half per cent., died from cardiac paralysis, sudden death "resulting from getting up too soon, contrary to instructions."

Of the 212 fatal cases where no antitoxin was used, 50, or twenty-four per cent., were moribund or hopeless when first seen, and hence no antitoxin was used, as stated by the attending physician, because of the patient's condition; 33 cases, or sixteen per cent., were seen too late, in the opinion of the attending physician, for antitoxin to be of any use; 17 cases refused treatment with antitoxin, though strongly advised; and 4 cases were not injected, because being complicated with scarlet fever, measles, etc., antitoxin was considered useless. In 94 cases, or forty-four per cent., antitoxin was not administered, because the attending physician was opposed to its use, was doubtful of its efficacy, or no reason was given. A number of physicians stated that in future they intended to use antitoxin owing to the bad results obtained by other methods. A very large majority of the physicians from whom reports were received (over two-thirds), expressed themselves as strongly in favor of the use of antitoxin in diphtheria. Many of them presented records of previous severe cases treated with antitoxin with good results.

A report is also presented which was prepared by Alfred L. Beebe, Ph.B., Assistant Director of the Diagnosis Bacteriological Laboratory. This includes a series of tables and charts, showing the actual and relative mortality from diphtheria and croup in New York, Berlin, and Paris, previous to and following the introduction of antitoxin in these cities. Mr. Beebe's report follows: "In accordance with your directions the following tables and charts have been prepared from the official statistics of New York, Paris, and Berlin, with a view to show the effect, if any, produced by the use of diphtheria antitoxin on the actual and relative mortality from diphtheria and croup in these cities.

Table 8 gives the annual actual mortality in New York from diphtheria and croup for the years 1880–1895, the case fatality from diphtheria, 1880–1890, and the case fatality from diphtheria and croup combined, 1891–1895, and from January to October, 1896. Croup was not officially classed as a contagious disease by the New York Health Department prior to 1891, and cases of this disease were therefore not required to be reported to the Department. It will be noticed that in the first two years after the reporting of croup is required, the mortality from diphtheria is raised nearly 10 per cent. by the croup deaths (27.9 per cent. to 36.7 per cent., and 30.9 per cent. to 40.6 per cent.). After this the influence of the croup deaths becomes less, as in 1893 the Health Department declared that membranous croup was in the vast majority of cases laryngeal diphtheria, and would be so regarded by the Department. After this announcement the relative proportion of deaths ascribed to croup gradually diminishes, until in 1895 the croup deaths equaled only about one-fifth of the diphtheria deaths, while in 1891, and before, they equaled from two-fifths to one-half or more the number of diphtheria deaths. In no single year until

TABLE VIII.—NEW YORK—DIPHTHERIA AND CROUP: CASES AND DEATHS, WITH CASE FATALITY, 1880, TO OCTOBER, 1896, INCLUSIVE.

Year.	Cases.			Deaths.			Case Fatality.	
	Diphtheria.	Croup.	Total.	Diphtheria.	Croup.	Total.	Diphtheria.	Diphtheria and Croup.
1880	3307	....	....	1390	910	2300	42.3	....
1881	5196	....	....	2249	1038	3287	43.3	....
1882	3507	....	....	1525	729	2254	43.5	....
1883	2096	....	....	1009	644	1653	48.1	....
1884	2223	....	....	1090	748	1838	49.0	....
1885	2920	....	....	1325	855	2180	45.4	....
1886	3737	....	....	1727	968	2695	46.2	....
1887	5923	....	....	2167	889	3056	36.6	....
1888	6491	....	....	1914	639	2553	29.5	....
1889	6489	....	....	1686	605	2291	25.9	....
1890	4350	....	....	1262	521	1783	29.0	....
1891	4874	490	5364	1361	609	1970	27.9	36.7
1892	4654	530	5184	1436	670	2106	30.9	40.6
1893	6468	553	7021	1970	588	2558	30.4	36.4
1894	9155	486	9641	2359	511	2870	25.8	29.7
1895	9925	428	10,353	1634	342	1976	16.4	19.1
1896[1]	8046	240	8286	1224	168	1392	15.2	16.8

[1] First, second, and third quarters.

TABLE IX.—PARIS: DEATHS FROM DIPHTHERIA AND CROUP, BY MONTHS, 1889, TO JULY, 1896.

Month.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.
January	214	136	184	120	164	145	48	53
February	185	182	202	135	108	110	47	61
March	219	211	192	162	149	148	45	59
April	174	196	183	131	136	133	36	69
May	184	169	145	153	133	122	38	56
June	148	144	103	124	115	80	14	31[2]
July	128	147	95	108	83	78	25	..
August	125	131	78	115	80	64	23	..
September	135	114	64	99	63	31[1]	20	..
October	116	125	73	106	58	27	33[2]	..
November	125	134	97	134	68	33	38	..
December	137	170	115	170	109	38	73	..
Totals	1890	1859	1531	1557	1266	1009	440	..

	Antitoxin not used.	Antitoxin in general use.
Largest number of deaths for any month	219	73
Smallest number of deaths for any month	58	14

[1] Antitoxin in general use.

[2] Monthly report missing; estimated from the weekly returns.

TABLE X.—BERLIN: DEATHS FROM DIPHTHERIA AND CROUP, BY MONTHS, 1889 TO JULY, 1896.

Month.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.
January	119	154	102	119	165	138	79[1]	72
February	109	108	103	103	145	137	64	55
March	98	134	86	113	115	140	88	46
April	94	167	73	94	120	133	68	49
May	75	126	73	93	106	134	56	45
June	82	119	67	81	101	96	74	27
July	70	90	49	88	116	71	77	..
August	91	106	64	90	92	92	57	..
September	113	146	96	100	162	134	88	..
October	119	137	112	140	174	119	120	..
November	131	161	127	182	182	118	115	..
December	183	136	126	193	163	118	110	..
Totals	1284	1584	1078	1406	1643	1430	996	294[2]

[1] Antitoxin largely used.

[2] Mortality for first half of 1896.

1895 did the number of cases of croup reported equal the number of deaths. Owing to the rapidly fatal termination of the majority of cases of croup, the report of death was either the first report received by the Department, or the report of the case and of the death arrived almost simultaneously."

Bearing the above in mind, it is evident that the figures for case fatality from diphtheria, 1880–1890, are not comparable with those showing the combined fatality from diphtheria and croup, 1891–1895. The figures for case fatality from diphtheria alone are relatively lower from 1891–1895 than before, as is shown by the table, and as the figures for case fatality from diphtheria and croup combined undoubtedly show the true mortality in diphtheria, they are absolutely, as well as relatively, too low for these years. On the other hand, progressing backward in the scale of years, an increasing percentage of cases of diphtheria were not reported, and the case fatalities for these years are therefore higher than the truth, especially in the earlier years for which figures are given. Taking all the facts into consideration, it seems probable that for the earliest years for which figures are given, the case fatalities for diphtheria alone are somewhat too high; that for the years immediately preceding 1891 they are too low; while for the immediate years they are more nearly correct.

(To be continued.)

REVIEWS.

A TREATISE ON SURGERY. By American Authors. Edited by ROSWELL PARK, M.D., Professor of Surgery and Clinical Surgery, Medical Department, University of Buffalo, Buffalo, N. Y. In two very handsome octavo volumes, comprising about 1600 pages, with about 800 engravings, largely original, and about 40 full-page plates in colors and monochrome. Volume I, General Surgery and Surgical Pathology. Volume II, Special Surgery. Lea Brothers & Co., Philadelphia and New York, 1896.

A critical review of the first volume of this treatise will convince the reader that it will at once assume a position as one of our best surgical text-books. The work, as a whole, will compare favorably with any other, and in many respects this volume is superior to the first volume of other surgical treatises. This is especially true in regard to the chapters written by the editor, who contributes three hundred pages. The other chapters are written by teachers of note and, as a rule, they are clear, comprehensive, and concise. The volume does not contain a chapter which is not thoroughly up to date. The editor has shown his wisdom in stamping each chapter with the author's name.

In the preface he says: "The importance of bacteriology is everywhere recognized, and its teachings are impressed upon almost every page." This is true of the volume as a whole, and especially so of Dr. Park's contributions; indeed, in this respect, his treatise is decidedly in advance of any other surgical text-book. At the same time, the work is eminently practical, and credit must be given to the editor and other contributors for the logical application of scientific facts to routine practice. Such a clear adaptation of pathology to practical work will be of great use to the busy practitioner, and it will enhance the student's interest in a branch of surgery which at times seems to him tedious.

The volume contains several chapters on subjects which we do not expect to find in a surgical work. Their presence adds to the interest and value of the volume. One of these is on the surgical pathology of the blood. Another on autoinfection will be of especial use to the younger class of surgeons, who are apt to entirely overlook the influence of the "constitution" of the patient on the outcome of operation or surgical disease. In the chapter on acute intoxications is found an excellent description of delirium tremens, which disease certainly deserves a place in a surgical work. In another chapter is also an interesting account of immunity and predisposition to infection by the pyogenic bacteria.

The volume is divided into five parts and thirty-seven chapters. Part I treats of surgical pathology, and its five chapters are written by the editor—probably the most valuable part of the volume. Of especial interest is his statement regarding the diagnostic value of leucocytosis. The chapter on inflammation is admirable. The description of chemotaxis and the formation of pus is especially clear. His story of inflammation and suppuration may be, as he says, rather romantic, but it will certainly impress the mind of the student. However, his classification of the causes of gangrene must be regarded in a large degree as arbitrary.

Part II treats of Surgical Diseases. The advice as to preparation of patients for operation is, on the whole, judicious, though it will be apt to influence students to rely too much on drugs, instead of the *vis medicatrix naturæ*. His description of the difference between sapremia and septicemia is clear and good, though his definition of the former term is not elegant. In the treatment of poisoned wounds details are somewhat lacking. He gives a good account of erysipelas, but under treatment fails to mention the methods of limiting the disease by crisscross-incisions or by antiseptic injections around the erysipelatous area.

In the chapter devoted to the consideration of tuberculosis, such terms as *psophylactic*, *archepyon*, *pyoid*, and *puruloid* are noted. These terms, suggested by Dr. Park a year or two since, have failed to obtain the sanction of the profession, probably through no fault of the words themselves. The propriety of applying the term gummata to any but syphilitic masses is very questionable. In his opinion "tuberculin (Koch's) is a remedy of great value when judiciously used in selected cases."

Chapter X, by J. A. Fordyce, on syphilis, is well written, and will be a safe guide for the student and an excellent *resumé* for the busy practitioner. There are several excellent colored plates. The chapter on gonorrhea, by N. T. Belfield, gives a fair presentation of the subject. He says too little, however, about the destructive effects of the disease in the female.

The chapter on shock and collapse is concise, but it seems out of place between sections on gonorrhea and scurvy.

Part III treats of Surgical Principles and Methods and Minor Procedures. The first two chapters are written by J. Parmenter. They are satisfactory. A needed warning against the use of styptics is omitted, and surgeons will hardly agree that the "granny-knot is thoroughly secure."

In the chapter on anesthesia, by H. A. Hare, the indications for the use of the different anesthetics are clearly and judiciously set forth. In the treatment of ether-vomiting, too little stress is laid on the importance of letting the stomach alone and avoiding drugs. The method of inversion described as Dr. Kelly's antedates Dr. Kelly's birth.

Part IV, on Injury and Repair, begins with a chapter on wounds, by C. B. Nancrede, and is followed by one on gunshot-wounds, by the same author, which is most interesting. It is very full and explicit and is illustrated by many excellent cuts.

Part V treats of Surgical Affections of the Tissues and Tissue-systems. The chapter on cysts and tumors, by Dr. Park, is one of the best. Space will not allow of more than mere mention of several excellent chapters in this part, such as those on malformations, ruptures, and tendons, etc., by H. L. Burrett; on injuries and diseases of the lymphatic vessels, by F. H. Gerrish; on the veins, by J. M. Holloway; on the arteries, by Duncan Coe, and skin-diseases, by W. A. Hardaway.

The chapter on injuries and diseases of the joints is an admirable one. The short section on general considerations teems with valuable facts expressed in a clear and concise manner; indeed, this is true of the entire chapter. H. H. Mudd considers fractures and dislocations in two excellent chapters.

An index of twenty-two pages is adequate and not too elaborate. The whole volume is singularly free from errors. The proof-reading has been most careful. In such a large work there must, of course, be a few oversights, as the sentence beginning the paragraph on page 27; but the reviewer, after careful perusal of the work, has been able to discover only one or two others. This volume will certainly meet with success. Both for the student and practitioner it will be a most valuable work. It is thoroughly practical and yet thoroughly scientific. The paper, type, and illustrations are good, and the volume presents a handsome appearance.

A Practical Treatise on Medical Diagnosis. For the Use of Students and Practitioners. By John H. Musser, M.D., Assistant Professor of Clinical Medicine, University of Pennsylvania, Philadelphia. New (2d) edition; thoroughly revised. In one octavo volume of 925 pages, with 177 engravings and 11 full-page colored plates. Cloth, $5.00; leather, $6,00. Lea Brothers & Co., Publishers, Philadelphia and New York. 1896.

The exhaustion of the first edition of a work of this character and scope within eighteen months of its publication is unusual and complimentary alike to the author and to the medical profession.

In the preparation of this volume the writer has set up for himself the very highest ideals. It would be well if all students and many practitioners of medicine would learn this sentence from the preface: "Partial knowledge of the nature of a case differs merely in degree from ignorance, and treatment based on either invites chances unjust alike to the patient and to the interest of the physician." It is in the spirit of this declaration that every chapter has been written, and it is with the same question as to thoroughness and completeness that the author has taken advantage of the exhaustion of the first edition to revise the entire work. By so doing, every real advance that has been made in this rapidly progressing department of medicine is here recorded, and made available in a single volume. This is especially noticeable when one compares the two editions, topic by topic, or even page by page. There is no half knowledge. There is no looseness in the use of words. The author's style is clear and pointed, and yet smooth. His descriptions of the diagnostic manifestations of diseases are accurate, and not overburdened with words. The methods of conducting the physical examinations of the various organs of the body are admirably inculcated, and the results to be looked for are described in terms that are precise and yet easily comprehensible. The points of differentiation in diseases, presenting more or less similarity, are clean cut.

There is such fulness and so much detail in the author's chapters on the chemic, microscopic, and bacteriologic examinations of the pathologic products in diseased conditions, that the book can be used as a working laboratory text-book on these subjects.

The arrangement of subjects is convenient. The first six chapters, covering 191 pages, are devoted to general diagnosis, and comprise the following subjects: General Observations, The Data Obtained by Inquiry, The Data Obtained by Observation, Bacteriological Diagnosis, The Examination of Exudations, Transudations and Cystic Fluids, and The Morbid Processes and Their Symptomatology. The remainder of the book, a total of 718 pages, is given to Special Diagnosis, in which the organs are taken up seriatim, and the manifestations of each disease are thoroughly discussed. There are comparatively few cross-references, and a competent index makes easy work of looking up any subject in its entirety. This is a great advantage to the student, for this grouping together, by his own efforts, of the symptoms of a given disease, the descriptions of which are to be found under different heads, is sometimes difficult and always annoying.

The illustrations are sufficiently numerous, perhaps, although they might have been used to advantage in some instances where not employed. The engravings illustrate, however, and do not serve simply to embellish. The number of colored plates in this edition is increased from two to eleven, and they are admirable samples of artistic work.

It is certain that the revised edition of this work will meet all the requirements of student and physician, and that it will long hold its place as one of the most notable contributions to scientific medicine.

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ORIGINAL ARTICLES.

NOTES ON THE REACTIONS AND TESTS OF BILE PIGMENTS IN URINE AND OTHER ORGANIC FLUIDS.

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THE primary pigment-substance of the bile is bilirubin. From it are derived a number of secondary pigments that occur in various fluids of the body, while still others may be produced experimentally. Under the action of certain reagents, probably setting up a process of oxidation, a series of differently colored pigments is formed from bilirubin. Bilirubin, with its characteristic rich amber or brown color, is first transformed into the green biliverdin; this in turn changes into a blue pigment (bilicyanin), followed by a purple red and then, it is said, a yellow substance. Of these pigments, bilirubin and biliverdin are of common occurrence in organic fluids.

The numerous tests recommended for the detection of bile-pigments mostly depend upon this reaction. There are other pigments or pigment-forming substances in the organism that afford red, purple, and other color-reactions with mineral acids; but the distinguishing characteristic of bilirubin is its primary transformation into a green pigment (biliverdin). The essential feature of the ordinary tests for bilirubin is the appearance of an initial green—which may, however, be very transient—under the action of certain reagents. The various processes differ as to the reagents employed (mineral acids and halogen bodies) and the manner of applying them.

The results of a number of observations which I have made as to the effects and relative sensitiveness of various reagents and tests applied to aqueous dilutions of bile, removed after death from the human gall-bladder, appear to be worthy of note. The stronger dilutions of bile (down to about 2 or 3 of bile to 100 of water) are deep brown, and on agitation produce a profuse golden froth. As the dilution becomes more attenuated the brown gradually passes into a rich golden or bright amber. Dilutions of 1–1000 present a well-marked amber color, while in dilutions of 1–10,000 a yellow tinge is still plainly perceptible on looking through a depth of 20 or 30 centimeters of the fluid.

The color-reactions produced by various reagents upon diluted bile are as follows: Pure sulphuric, hydrochloric, or nitric acid, mixed in small proportion with dilutions (five-tenths to two per cent.) of bile, cause a slow change of its color from yellow to green. Several hours may elapse before the change is effected. If the acid be added in larger proportion, the color changes more rapidly, while in very large proportion the green may further change to blue and purple tints. Pure nitric acid is more powerful in effecting the color changes than either sulphuric or hydrochloric acid.

The impure yellow nitric acid of commerce, containing lower oxids of nitrogen, is far more energetic in its action on bilirubin than are the pure mineral acids, and is a very satisfactory reagent for testing purposes. Three or four drops added to about five cubic centimeters of a five-tenths to two-per-cent. dilution of bile, produces a bright green color, immediately or after a short interval; a larger quantity (8 to 15 drops) causes an immediate change to bright grass-green, which soon turns blue, and then purple red. If the fluid be heated, the vigor and rapidity of the reaction are much increased. A mixture of equal parts of pure nitric and hydrochloric acids, prepared immediately before using (the mixture soon turns yellow), was found to produce the color changes in the same manner as does commercial nitric acid, and with equal, or perhaps even greater, energy. Hydrogen peroxid—the commercial article, which contains a small amount of acid—causes a gradual change of color to green.

Very striking reactions were obtained by mixing about five volumes of diluted bile with one volume each of hydrogen peroxid and a strong solution of sodium bromid, and then rapidly mixing with this one-half to one volume of either nitric, hydrochloric, or sulphuric acid. The yellow color of the fluid immediately changes to a green, quickly turning blue and then purple-pink, then more slowly changing to gray, and lastly to yellow. The final yellow does not appear to be due to the bile, but is produced by reactions among the reagents added (perhaps the liberation of bromin). The initial green may pass into the blue so rapidly as to be overlooked if not carefully observed. The changes of color in rapid succession, and their strong contrasts, as in the similar effects producible by commercial nitric or by nitrohydrochloric acid, afford a very striking

reaction. The addition of grape-sugar was not found to affect the reactions in any way.

There are various modes of applying the reagents so as to obtain these color-reactions, as (1) by mixing the fluids intimately, as above indicated; (2) by underlaying the bilirubin-containing fluid with the acid, or (3) by allowing a few drops of each of the fluids to flow together on a white plate.

The color-reactions that occurred on intimately mixing the reagents employed—commercial nitric acid, the nitrohydrochloric acid-mixture, and the mixture of sodium bromid, hydrogen peroxid, and acid—with the fluid were perfectly characteristic and well marked with bile diluted with water as far as the proportion of about 1–200 or 400 (varying with different specimens of bile); below that strength, the reaction became less conspicuous.

The contact method, carried out by underlaying the diluted bile with the acid employed (as in the contact test for albumin), is of equal availability and sensitiveness. At the junction of the two fluids there is usually a colorless layer; above this are layers of reddish purple, blue, and green, from below upward; the green diffuses through the upper fluid, and after a time is replaced by the blue. Below, the acid is pale yellow. In case the sodium bromid and hydrogen peroxid are employed, they may be mixed with the fluid, and the whole then underlaid with the acid. The green layer was distinctly marked in dilutions as low as about 1–200 or 400; below that strength some play of colors was present, but the green color, which is the essential element in testing for bilirubin, became indistinct.

A test very commonly recommended for bile-pigments consists in placing a few drops each of impure nitric acid and the fluid to be tested on a white porcelain dish, and causing them to flow gently together. A play of colors, beginning with green, at the junction of the fluids, indicates the presence of bilirubin. Tests of this method showed it to be sensitive with dilutions of bile to about 1 in 50 or 100; in weaker dilutions a marked play of colors occurs, but no distinct green is present. The methods of mixture or underlaying with the reagent, which are equally easy of application, plainly exhibited the reaction in fluids containing at least one-fourth as much bilirubin, and are therefore about four times as delicate. Moreover, icteric urines occur which give marked response to the mixture or contact-tests, but none distinctly with the plate method. It would seem, therefore, that the white-plate test for bilirubin should be discarded. A number of other methods of carrying out the test, which have been recommended, were briefly tried, but none was found more sensitive or simple than those mentioned above.

Occasions for testing for the presence of bilirubin arise chiefly in connection with the urine. The appearance of urine containing bilirubin is usually almost characteristic. The color is a rich, clear, brownish or bright amber; on its surface a golden froth forms freely on agitation; in consistency, the fluid is perhaps a trifle thicker than usual, and it may impart a yellow color to sediments and precipitates, or to paper moistened with it. Either yellow commercial nitric acid, or a fresh mixture of equal parts of nitric and hydrochloric acids, may be conveniently used to test for bilirubin. If the urine be very dark it may be advisable to dilute it. Three to fifteen drops of the acid may be mixed with five to ten cubic centimeters of the urine to be tested; or the urine may be underlaid with the acid. The presence of unmodified bilirubin is indicated in the former case by the liquid turning a bright or a dark green, either immediately or after a few minutes, perhaps followed subsequently by blue and red colors; in the latter case by the appearance of a green color or layer, above the other colors.

If commercial nitric acid be used in carrying out the common heat-and-nitric-acid test for albumin, the same procedure may serve for both tests, as the hot urine will readily turn green on adding sufficient acid if bile-pigments are present, or the albumin may be precipitated green.

A good arrangement of light for observing the contact-test is to hold the test-tube before white paper, placed at such an angle that the light from the window falls directly upon it, and is thence reflected to the eye of the observer through the fluid.

Other pigments in urine that produce striking red, blue, and other color-reactions with acids, but no green, must be carefully distinguished from bilirubin. Conversely, in order not to interfere with other tests, as for indican, bile-pigments may be precipitated by the addition of lead-acetate solution.

When bile is vomited from the stomach the color of the fluid is frequently or usually green, due to the presence of biliverdin derived from bilirubin by the action of the hydrochloric acid of the gastric juice. On adding the usual acid reagents, the green color becomes blue, the process of oxidation being thus carried a step further.

It occasionally happens that the urine from icteric patients, although presenting the color and other appearances of containing normal bile-pigment, does not respond to the tests of bilirubin. Instead of green, a red or even a blackish color may appear. In these cases the bilirubin has undergone some transformation, perhaps reduction to urobilin, and is incapable of being converted into biliverdin.

THE PRACTICAL VALUE OF THE RÖNTGEN-RAY IN THE ROUTINE WORK OF SURGICAL OFFICE PRACTICE.

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(Continued from page 688.)

An important consideration in connection with skiagraphy in any form is the occasional burning of the patient. At first it seemed impossible that the Röntgen-ray could cause any injury to the skin. The explanation seemed to lie rather in a direct contact with the electrical currents, thrown off either from the tube or from the wires—currents too small, perhaps, to be visible, or to cause any distinct sensation of pain. This theory seems untenable, however, in view of the fact that in some cases of undoubted burning, the Crookes tube has not been held nearer to the skin than eighteen inches. I have used the machinery now some three or four months almost daily, and have had no ill effects in any of my cases. In this community, however, two undoubted cases of injury, following the use of the X-ray, have been observed. One is referred to by Dr. J. C. White in the *Boston Medical and Surgical Journal* of December 3, 1896, page 583. In Dr. White's letter is mentioned a case of "Dermatitis caused by X-rays," published in the *British Medical Journal* of November 7th. Dr. White mentions also a case under the care of Dr Warren at the Massachusetts General Hospital: "A young lady was exposed to the rays for half an hour on one day, and forty-five minutes on the following day, the tube being placed about six inches in front of her sternum. On the following day the skin over this region became red, and later 'blistered.' Three months subsequently, when seen by me at the request of Dr. Warren, early in October, there was an area of angry-looking granulations some three inches square, which had obstinately refused to 'heal.' The surface was very sensitive, and the region was the seat of severe neuralgic pain. It is reported that at the present date, November 15th, two small 'open' spots persist, and that the region is still painful."

I saw this case of Dr. Warren's when it first entered the hospital; some doubt was then expressed as to the source of the irritation. It was thought that minute sparks from the tube might have affected the skin. A much more distressing case has lately been called to my attention, through the courtesy of Dr. Stickney of Beverly.

Dr. Stickney writes:

"The patient, Mrs. Q., came under my care last August, at which time she was suffering from some obscure abdominal trouble. She wished to have the X-ray used on her as a possible means of diagnosis, and with that purpose in view made her arrangements with an expert in skiagraphy, and requested me to be present. The whole abdominal region was exposed to the X-ray, but the force of the ray was focused more to the region of the liver, as that was where she complained of her trouble. There were three exposures made—one of twenty minutes, one of thirty minutes, and the last of thirty-five minutes. The Crookes tube was not brought nearer than eighteen inches to the parts exposed.

"She experienced no discomfort at the time, but some two days after called at my office, complaining that the region exposed to the X-ray felt as though it had been burned by the sun. Upon examination I found the appearance of the parts exposed to be similar to that seen in severe forms of sun-burn. The condition of the parts from this time grew rapidly worse, until a surface some eight inches in diameter had sloughed. The slough was very slow in separating, and the surface has been very slow in filling in, the vitality of the parts seeming to have been affected much deeper than the slough would indicate. All the different treatments for burn and ordinary lesions of like nature have been adopted, together with a thorough curetting, but nothing seems to be of much assistance. The lesion has been very painful from the first.

"At the present time the surface has cicatrized, so that a surface of four inches in diameter is still left unhealed."

It would seem, from the experience derived from these two cases, that the trouble comes from long and continuous exposure.

It is essential, therefore, before subjecting a patient to prolonged examination by the X-ray, to warn him that in rare instances the skin is affected.

CASE X.—A. F., aged nineteen, a football-player, was injured in his left shoulder. There was great tenderness in the outer extremity of the left clavicle. It was impossible, six hours after the injury, to make out crepitus or deformity. A skiagram, taken after an exposure of some six or eight minutes, showed a solution of continuity at the seat of pain. On the strength of the fluoroscopic examination, the arm was put up in a Velpeau bandage. The young man evidently regarded the injury as trivial, for he never appeared again. I was informed, however, by the surgeon of the football-squad, Dr. Balch, that a callus appeared at the point of tenderness a week or more after the injury.

CASE XI.—October 26, 1896: Mr. G., aged fifty-one, four weeks ago began to have pain in the upper jaw. A tumor was conspicuous, through which the X-ray passed without interruption, except from a loose fragment, evidently a sequestrum. Operation

showed an extensive necrosis of the upper jaw, with a loose piece of dead bone, as shown in the skiagram.

CASE XII.—October 27, 1896. Mr. C., aged fifty-two, a syphilitic with extensive ulcerations over the tibia. By digital examination there seemed to be an increase of bony substance. A skiagram, taken after an exposure of six minutes, showed the tibia perfectly smooth, without loss of contour or increase of bony growth.

CASE XIII.—October 27, 1896. Miss B., a nurse, aged thirty-two, after a septic wound of the middle finger of the right hand, had not been able to straighten the finger for some weeks. The skiagram showed a bony ankylosis.

The distal end of the first metatarsal bone was removed and the great toe brought into the normal line. The man made a rapid recovery. A skiagram, taken a month or two after the operation, showed in an interesting manner the position of the cut surface of the metatarsal bone, with reference to the first phalanx.

CASE XVII.—Doctor ——, aged forty-four, in playing polo had received an injury to the first interphalangeal joint of the middle finger. There was considerable thickening, apparently of bone; yet both fluoroscope and skiagram showed that the bony portions were perfectly healthy. Evidently the case was one of traumatic arthritis without injury to the bone.

FIG. 4.

CASE XX.—Fracture of the Clavicle.

CASE XIV.—October 27, 1896. Judge ——, aged fifty, had received an injury to the left wrist, and feared that the bones had been injured. The fluoroscope showed nothing abnormal. After an exposure of four minutes to a Carbutt plate, a very beautiful demonstration of the bones was obtained, which showed them to be perfectly intact.

CASE XV.—I. F. C., aged forty-two, had an extensive swelling of the right knee, which was shown by the fluoroscope and by the skiagram to involve extensively both tibia and femur. The outline of the diseased parts could be clearly seen.

CASE XVI.—Mr. B., aged fifty-nine, had had for ten years a marked hallux valgus. Examination with the fluoroscope showed the exact position of the bones.

CASE XVIII.—A man of about fifty-seven years received in a planing-machine a severe injury to the right elbow, which required the removal of a portion of the ulna near the elbow. There was marked impairment of function. Examination with the fluoroscope showed no abnormal position of the bones. The skiagram confirmed this. The ankylosis was evidently functional rather than organic, and the man has been put upon massage and passive motion.

CASE XIX.—Mr. D., aged thirty-eight, had a Pott's fracture of the ankle, received from a fall in the street. There was marked eversion of the foot —much more than the position of the fragments would seem to explain. The skiagram shows a fracture of the fibula, with some injury to the internal

malleolus, and a forward displacement of the tibia. No bony injury to the tibia could be made out. The patient was sent to Dr. Goldthwait who applied a steel support.

CASE XX.—A man of thirty-two, in September, 1896, fell from his bicycle and received an injury to the left shoulder. He was treated in a hospital. I first saw him two months after the injury. Nothing abnormal could be detected on inspection. Careful digital examination revealed a slight deformity of the left clavicle. There had evidently been some kind of fracture, but the result was extremely good. The skiagram (Fig. 4) shows excessive displacement of the fragments. Such a skiagram as this would certainly indicate to the lay mind a deplorable lack of skill. The surgeon knows, of course, that such results cannot be prevented, especially in the clavicle.

CASE XXI.—Mr. X., aged thirty-four, shot himself through the thorax with a thirty-two caliber revolver, in November, 1893. The wound of entrance was two inches above and to the right of the left nipple. It was hard to see why the bullet had not penetrated the heart. Complete and lasting recovery followed. In September, 1896, in examining with the fluoroscope, I could see the bullet distinctly in the left and posterior part of the thorax under the ninth rib. After an exposure of thirty minutes a faint skiagram of the ribs, scapula and bullet was produced. No operation was performed, as the missile was causing no trouble.

CASE XXII.—Mrs. B., aged sixty-six, has had for years severe rheumatic arthritis in the fingers of the right hand. An exposure of forty seconds gives an excellent idea of the osseous deposit.

Besides the foregoing cases, I have used the fluoroscope in many others—cases in which negative results were of great service to me in forming an opinion, such as demonstrations of the absence of fractures and dislocations, bony ankyloses and tumors. The usefulness of the apparatus is quite as conspicuous in cases of this kind as in those in which a foreign body or a bony deformity is present.

The medico-legal aspects of this subject, though at present uncertain, add strong arguments in favor of routine office skiagraphy. In fractures it is of the greatest importance for the physician's own protection that he should ascertain by the use of the fluoroscope the exact situation of the fragments, even if he has already an accurate idea of their position and shape, for if he does not recognize, even if he cannot correct, a faulty approximation, the deformity is pretty sure, sooner or later, to be detected by a complaining patient. It is only a question of time, I think, when every person who has had a fracture will try to have it photographed by the X-ray. It will then appear, as we all know, that in many instances the bones are not in perfect approximation. Indeed, fragments which have been brought together with the greatest care by the most skilled operators will often show, under X-ray photography, a reduction which, to the patient, appears unskillful. I recall one case in which one of the most eminent surgeons in this country reduced a fracture of both bones of the forearm. Though the position was absolutely perfect, as far as could be judged by any of the ordinary methods of investigation, an X-ray photograph showed that the fragments of the ulna were considerably displaced (see Case 1). The ultimate practical result was most excellent. The imperfect approximation would never have been suspected by ordinary methods of examination. Indeed, it is doubtful whether the fragments could have been better adjusted by the aid of the fluoroscope. Nevertheless, it seems to me, the use of the X-ray is demanded in all cases, for some fractures are sure to be followed by an impairment of function. Unless, therefore, the surgeon can show that he has used every means at his command to understand and treat the fracture (and these remarks apply also to dislocations), his defense in case of legal complications—always liable to arise—must, of necessity, be weakened.

The present aspect of the subject before the courts seems of interest in connection with a physician's responsibility in the case of fractures. I have been recently informed by an experienced trial judge of this Commonwealth that "It is the opinion of some of the judges of Massachusetts that X-ray photographs are not admissible as evidence. One judge holds that it has not been demonstrated as a scientific fact that they are accurate. The process has not become such a matter of common knowledge that the courts will take judicial notice of it. No man can tell by ocular or other sensory evidence that the reproduction is accurate. The truthfulness of the photograph is a matter of reasoning." Other judges do not take this view; they say that there is no reason why an X-ray photograph cannot be substantiated by reasoning from well-known anatomical facts—reasoning which excludes the mistakes and distortions of ordinary photography; that the courts have always received evidence which, by its very nature, must render valuable assistance in investigations; that, moreover, this evidence has not always been confined to that dependent upon the ordinary senses—a form analogous to the ordinary expert evidence; and, furthermore, that the rule of law has allowed not only evidence derived from the use of the five senses, but has also permitted the introduction of evidence derived from the reasoning power, as in the ordinary expert evidence, and the evidence as to customs, and the like. The crucial test will come when an actual case presents itself to the courts with all the side lights of fact and circumstance.

CLINICAL MEMORANDUM.

A CASE OF TUBAL PREGNANCY SIMULATING APPENDICITIS.

BY WM. T. LUSK, M.D.,
OF NEW YORK.

ON the 4th of November last, I was invited by a physician of this city to see with him a young woman, twenty-two years of age, who presented many of the symptoms of appendicitis. Her general health had in the main been good, but six months previously she had been suddenly seized with intense pain of sharp, lancinating character, in the right inguinal region. It persisted for three or four days, during which time the bowels were costive and vomiting was frequent. It then passed away, and except for occasional shooting pains in the right groin, the patient remained well until five days before my visit, when she had a second attack, likewise attended by vomiting and constipation. The pain, which had at first been general, was localized, and the tenderness upon pressure was apparently greatest at McBurney's point. The temperature was 100⅘° F., pulse 96, respiration 20, and there was retention of urine. The evidences of appendicitis seemed to be complete. I was, however, asked to make a vaginal examination. On the right of

the uterus I found a swelling the size of a large orange, which contained fluid, and was firmly fixed in the pelvic cavity. I suggested, therefore, that the patient should be removed to Bellevue Hospital for further consultation, and for operation, should the latter be decided to be necessary.

On her arrival at the hospital on November 5th, the temperature was 100.8° F., pulse 112, respiration 28. The case excited a great deal of interest on the part of the house staff, and of the consultants invited to the examination. It was thought that the skilled finger could detect the thickened appendix. As, however, the theory of appendicitis did not satisfactorily account for the pelvic tumor, I decided upon an exploratory incision in the median line. When the examining finger was introduced through the abdominal opening, it was easy to determine that the appendix was normal, and that no adhesion nor inflammatory condition existed in the vicinity of the cecum. The apparent enlargement of the appendix had disappeared. Below the pelvic brim, a sac with thin, tense walls was felt to the right of the uterus. It completely filled the right pelvic space. Fearing that the sac-contents might prove to be purulent in character, and feeling certain that manipulation would insure its rupture, I aspirated a portion of the fluid from below through the vagina. It proved to be clear and slightly tinged with blood. The removal of about an ounce was followed by the shrinking of the sac, and by the perceptible thickening of the sac-walls. It was then detached and ligated off without special difficulty. It proved to be a tubal pregnancy. The ovum had grown downward between the folds of the broad ligament. The embryo had probably perished in the early weeks, though there remained sufficient decidual and chorionic tissue to establish the character of the sac.

The patient made a rapid recovery, and returned home at the end of three weeks.

The case is interesting because of the question it raises as to whether a positive diagnosis of appendicitis can be made in all cases. Of course, there is no other department of abdominal surgery in which complete immunity against diagnostic error has been affirmed.

MEDICAL PROGRESS.

An Unusual Case of Lockjaw.—SACHSE reported in the *Centralbl. f. Chir.*, No. 40, 1896, an unusual case of lockjaw occurring without known cause in a male, aged twenty-four years. On waking one morning he found he could not open his mouth as far as usual. The disability increased daily, until he was unable to separate the teeth. For four years he was treated without benefit, until it was discovered that the right upper wisdom-tooth pointed directly outward, and so pressed against the internal pterygoid muscle as to prevent the jaw from opening. It was removed with difficulty. Immediately after its extraction the jaw could be partially opened, and in eight weeks function was fully restored.

Thirteen Operations for Recurrent Sarcoma.—In the *Lancet*, November 7, 1896, ELIOT gives the history of a series of thirteen operations performed by him upon a patient, seventy-five years of age, for myxo-sarcoma of the right scapula. The first operation was performed in September, 1892, the patient then being seventy-one years old. The growth recurred in a year, and was again and again removed, at intervals of from one to six months. In May, 1895, the arm was removed, together with the outer third of the clavicle, and what remained of the scapula. The patient made a good recovery, and four months later there was no evidence of recurrence. Eliot is convinced that although the disease recurred and caused the patient's death the removal of the whole extremity was nevertheless advisable, as the extension of the growth into the axilla was causing the patient great pain.

THE MEDICAL NEWS.

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OF MEDICAL SCIENCE.

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SATURDAY, DECEMBER 26, 1896.

IMMUNITY FROM TYPHOID FEVER OBTAINED BY INOCULATIONS.

PEIFFER and KOLLE have been conducting at Koch's Institute in Berlin a series of experiments with cultures of typhoid bacilli, and have obtained valuable results, some of which are outlined in an article in the *Deutsche med. Woch.*, November 12, 1896. Those who have kept in touch with the discoveries made in connection with the subject of immunity, know that protective inoculation against cholera has been conducted in India on a tremendous scale. In 1895, over 100,000 persons were inoculated, first with a small dose of a sterilized culture of cholera germs, then five days later with the same dose of a living culture, and five days after that with a final larger dose of the living culture. The results were definite, and not entirely unexpected. The inoculated individuals, when compared with others in similar circumstances who were not inoculated, were found to possess to a considerable degree an immunity from cholera.

Experimental research has yielded similar testimony. Thus it is found that 0.5 c.cm. of *normal* human serum is sufficient to save a guinea-pig from death if it is injected simultaneously with a loop full of cholera cultures into the animal's abdomen; a single milligram—indeed in some cases only a fraction of a milligram—of the serum of a *cholera-inoculated* man will avert death if injected in the same way. This specific result with such a minute dose can only be obtained by using the serum of either a person who has recovered from cholera, or, as already said, of one who has been inoculated with cholera cultures.

These results were so definite that Peiffer and Kolle resolved to test the typhoid bacillus in the same way, using for the purpose a most virulent culture obtained from the spleen. A small quantity of this was diluted with bouillon, sterilized, and injected under the skin of a man who had never had typhoid fever. The injection was followed by a chill, dizziness, and a temperature of 38.5° C.—101.3° F. These symptoms disappeared entirely in one day. The serum from the man so treated was drawn before inoculation, and six and eleven days after the inoculation, and used for experiments upon guinea-pigs. The results were found to be analogous to those obtained with cholera germs. At six days the serum showed its power of saving a guinea-pig, if injected into the abdomen with an otherwise fatal dose of typhoid culture. By the eleventh day this immunizing power was still stronger, being then at least as strong as that of the serum of a convalescent typhoid patient.

In the light of our present knowledge it seems that the freedom from second attacks, enjoyed by patients who have recovered from typhoid and certain other fevers, is due to the appearance in the blood of some specific germicidal substances. Their presence insures for a certain time—for months or years it may be—immunity from that particular disease which has produced them. If these artificial inoculations produce in the individual a serum of germicidal power equal to that of a convalescent patient, why will they not confer immunity against typhoid fever just as well as a previous attack of the disease? These investigators believe that this is so, and look for a practical application of the theory in some rapidly spreading epidemic.

It will be noticed that this is quite a different thing from the inoculation of a man already sick. The system in the latter case is already poisoned and reacts very differently to the injection of the serum. As in cholera so with typhoid; this antitoxic serum pos-

sesses a germicidal power, but does not seem to have any counteracting influence upon the toxic products of the typhoid bacilli. In this sense it is not an antitoxin.

THE TREATMENT OF TUBERCULOUS DISEASE OF THE KNEE-JOINT IN CHILDREN.

A most important contribution to the knowledge of the pathology of tuberculous disease of the knee-joint and of the final results of its treatment is presented in the recent report of the cases treated under the direction of Professor Koenig in the hospital at Göttingen during the eighteen years from 1875 to 1893, entitled "Die specielle Tuberculose der Knochen und Gelenke." Koenig calls attention to the fact that there has recently been a general abandonment of the operative in favor of orthopedic treatment, and states that, in his opinion, the reaction has been too great; for while it is true that an ideal result, the cure of disease and the preservation of function, can only be attained by conservative treatment, yet this is possible in but a small percentage of the cases, and that the radical removal of disease offers the only approximately sure method of cure, and is, on the whole, the safest treatment. Although Koenig does not admit the marked distinction, either in the pathology or behavior of tuberculous disease of the adult and the child, that has been claimed by others, yet for economic reasons, and because operative treatment does not offer the same assurance of permanent cure, conservative methods should receive in childhood a thorough trial before radical measures are resorted to. In answer to a possible criticism that more favorable results might have been presented by one who had operated less often, he asserts that no radical operation had been performed until he was assured that recovery with retention of joint function was impossible.

Of the 720 patients admitted to the hospital for the treatment of tuberculous disease of the knee-joint, 323 were children. Of these, 218 were either primarily or secondarily treated by radical operation: by arthrectomy, 128; by resection, 82; by amputation, 8. Simple conservative treatment was attempted in 128 cases, 83 children and 45 adults. In 117 of these, the final results are known; in 52 the treatment had been abandoned; in 49 (40 children and 9 adults) the results are classed as good, although of these but 14 recovered with a movable joint, and of the remainder the leg was deformed in one-half. Other cases (53 children) were treated by injections of iodoform-glycerin, by atypical operations, and the like, but it is impossible to separate the results from the larger number of adults similarly treated.

This proportion of operations on children shows either an advanced stage of disease or deformity, or else a tendency on the part of the surgeon toward radical treatment, while the results in the non-operative cases are bad enough to warrant the conclusions that have been drawn from them. On the other hand, the report shows that effective orthopedic treatment was lacking, except during the period of hospital residence; Koenig does not use apparatus because it is ineffective, and because of its expense; consequently all the protection that the joint received during the greater part of the treatment was that afforded by plaster-bandages applied at infrequent intervals.

It may be of interest in this connection to compare these statistics with those reported by Gibney (Transactions of the New York Academy of Medicine, vol. ix, 1893), showing the final results in 300 cases of tuberculous disease of the knee in children, treated during a similar period of twenty years at the Hospital for Ruptured and Crippled and elsewhere, by what may be termed, by comparison, ultraconservative methods. Radical operations were performed in but 16 instances, as contrasted with 218 in Koenig's list. In sixty-three per cent. of all those on whom conservative treatment was begun, it was continued to the end, and the patients were cured, as contrasted with fifty per cent. of Koenig's selected cases. Of 242 living patients, including those still under treatment, seventy-nine per cent. retained motion in some degree, thirty-eight per cent. of these from a range of 45° to normal. In a smaller group, treated by modern protective methods, motion was retained in ninety-five per cent. Although suppuration had at some time been present in nearly half of the cases, the death-rate from all causes was but 13.3 per cent.

In this country the orthopedic treatment of chronic joint-disease long antedated the knowledge of its cause, and this treatment, supported by the study of its effect upon the symptoms of the disease, and of

the functional results attained by it, has been modified rather than displaced by the better understanding of its exact pathology. Consequently, the patients have been spared in great degree the unnecessary and mutilating operations that were at one time in favor elsewhere.

The ideal result, as it is styled by Koenig, the cure of local disease and the preservation of function, at least in part, is not in childhood considered a remote possibility, but as a result that may be attained in a large proportion of cases treated under proper conditions. It is a result made probable by long-continued and effective protection of the diseased joint. Such protection must include the removal of superincumbent weight, and the cessation of joint function by fixation as complete as possible. Deformity, if present, must be rectified, and must never be allowed to recur. To this fundamental and essential protection all other surgical treatment is secondary, and it is believed that only when combined with such protection can the relative value of antituberculous injection or the method of passive congestion, or the minor operative procedures be ascertained, or the necessity or advisability of radical operations be properly estimated. For, while pathology, as Koenig insists, must be the basis of treatment, yet the condition of a joint revealed at operation depends in great degree upon the quality of the patient and upon the treatment that has preceded the operation. It may be true that there is no essential difference in the disease of the adult and the child, yet early excision is often the treatment of choice and necessity in the former, because practical experience has proved, aside from the economic question involved, that conservative treatment is more difficult, that the course of the disease is longer and more depressing, and that the outcome, both as regards mortality and functional results, is much less favorable than in childhood.

It is very evident that Koenig's conclusions cannot be accepted as applying to the treatment of knee-joint disease in this country. The great value of his work will be rather in the opportunity that it affords for the study of the intimate nature of the local tuberculous process, from its inception to its end.

Finally, we may conclude that the best statistics will be furnished by those patients on whom effective protective treatment has been early applied, and persistently and faithfully continued. This treatment must, from the nature and duration of the disease, be in a great degree ambulatory, and therefore orthopedic in character, and it is only in conjunction with such treatment that the advances toward the more rapid cure of disease, whether by operation or by any form of local medication, will be made.

Royal Whitman, M.D.

ECHOES AND NEWS.

Death of a Kansas Physician.—Dr. Selden W. Jones, one of the oldest practising physicians in Kansas, died at Leavenworth last week.

Resignation of Dr. Lloyd.—Dr. Samuel Lloyd has severed his connection with the editorial staff of the *American Medico-Surgical Bulletin.*

Changes in Parke, Davis & Co.—Mr. George S. Davis has withdrawn from the corporation of Parke, Davis & Co., the well-known manufacturing chemists, whose headquarters are at Detroit, Mich.

An American Physician Dead in Chili.—Dr. James H. Trumbell, formerly of New Haven, Conn., died recently at Iquique, Chili. He was graduated from Yale College with the class of 1848, and from the College of Physicians and Surgeons, New York, in 1852. He had resided at Talcahuano and Concepcion, Chili, for more than forty years.

Assault upon the Author of "Ben Bolt."—Dr. Thomas Dunn English, one of the oldest living graduates of the medical department of the University of Pennsylvania, and the famous author of "Ben Bolt," was assaulted by a tramp at his home in Newark, N. J., recently, but escaped without serious injury. His assailant was taken into custody after a lively chase, and was held for trial.

Bees to make Medicated Honey.—According to a Paris journal a Frenchman has been trying to compel bees to make medicated honey. He keeps the bees under glass and gives them only flowers that have the desired properties. Thus he obtains different kinds of honey by which influenza, coughs and colds, indigestion, asthma, and many other ills are said to be readily if indirectly reached.

An Interesting Lecture at Bellevue.—Dr. T. M. Rotch of Boston, lectured by invitation before the students of Bellevue Hospital Medical College on December 15th, last, on the Differential Diagnosis in the Eruptive Diseases of Children, with special reference to scarlet fever and its complications. The lecture was illustrated with colored lantern slides, and was exceedingly instructive and interesting.

"The Devil's Club."—There recently arrived in Portland, Ore., a miner from Alaska in search of surgical aid. His face and hands were filled with the poisonous barbs of a plant known as the creeping devil's club, *Panax horridus.*

The unfortunate man presented an appearance resembling the most aggravated erysipelas, and gave evidence of constitutional infection. Free incisions were often necessary to extract the thorns which incline to sink deeper and deeper into the tissues. Contact with this vine is one of the accidents of Alaskan travel most dreaded by prospectors.

Aiken Cottage Sanitarium.—Dr. C. F. McGahan has recently opened a Cottage Sanitarium at Aiken, S. C., for men only, who are suffering from the first stage of pulmonary phthisis. The work is modeled on philanthropic lines, a nominal weekly charge being made in order to exclude the pauper class, who are provided for elsewhere. The only similar institutions of this kind in this country are those conducted by Dr. Trudeau, at Saranac Lake, in the Adirondacks, Dr. Bowdich, at Sharon, Mass., and the Loomis Sanitarium, Sullivan County, N. Y.

Malignant Anthrax at Sing Sing Prison.—A convict in Sing Sing prison has recently developed a case of malignant anthrax, the result of scratching a pimple on his neck with his finger nails. He had been handling curled hair, such as is used in upholstery work, and it is supposed that the anthrax spores had collected under the nails. He has had violent hemorrhages from the nose and mouth, and his left side is completely paralyzed, but Dr. R. T. Irvine, the prison physician, thinks his chances of recovery are good. It is said that only about a dozen cases of this disease in man have heretofore been reported as occurring in this state.

The American Medico-Surgical Bulletin, beginning with the New Year, will be issued as a semi-monthly, with Dr. R. G. Eccles of Brooklyn, in editorial charge. The annual subscription has been reduced from four dollars to one dollar, and the policy of the publication will be upon radically different lines from those heretofore pursued by its retiring editors. It would appear to the interested inside observer that the "brilliant editorials, straight from the shoulder, written without fear or favor," and the greatly extolled "campaign against medical humbugs of every kind" in which other journals were invited to follow the *Bulletin's* lead to a glorious medical Arcady, has not been attended by the scintillating success that the projectors anticipated.

CORRESPONDENCE.

THE MEDICAL NEWS ANTITOXIN INVESTIGATION.

To the Editor of THE MEDICAL NEWS.

DEAR SIR: I desire to offer my very earnest commendation on the investigations undertaken by the MEDICAL NEWS to determine the strength of the different preparations of diphtheria antitoxin that are now on sale in different parts of this country.

It would seem almost unnecessary to direct attention to the fact that the value of a preparation of antitoxic serum depends not upon the bulk of the serum, but upon the antitoxin contents; and yet this matter of supreme importance in determining the efficacy of diphtheria antitoxic serum has received comparatively little attention outside of France and Germany, where the tests are under governmental control. In Great Britain, until within a few months, it was unusual for preparations of serum to bear any statement of their strength in antitoxin. They were simply labeled diphtheria antitoxin, or antitoxic serum, dose 10, 20, or 30 c.c., as the case might be.

The investigations of the special commission of the London *Lancet*, made during the recent summer, showed conclusively that many of the preparations in use in England were entirely inefficient, or almost without value. I had occasion at that time to direct a communication to the editor of the *Lancet*, calling attention to the action of the New York Health Department in December, 1894, regulating the sale of this agent in this city. On December 26th, 1894, a communication by Dr. T. Mitchell Prudden and the writer was addressed to the New York City Board of Health recommending "that the Board take such action as may be required to prohibit the sale or exposure for sale in this city of any preparation of this remedy in which the vial containing it does not bear a label giving the value in antitoxin of the contents, as measured by some recognized standard." As the result of this recommendation the Health Board adopted an amendment to the Sanitary Code on January 9th, 1895, reading as follows:—"Sec. 220—That no preparation of diphtheria antitoxin shall be offered or exposed for sale in this city unless the receptacle containing such preparation bear a label on which is placed the name and the address of the producer, and upon such label, or upon a circular accompanying such receptacle and enclosed with it in a sealed package, shall be printed or written the date of production and the value of the contents in antitoxin, as measured by some generally recognized standard."

At the time that this action was taken there were already on sale in this city two or three preparations of so-called antitoxic serum, which contained absolutely no antitoxin and these preparations were being sold at $5 to $10 a vial. The action of the Board taken at the very beginning of the work in this country resulted in the immediate disappearance of all the absolutely spurious preparations from this city, and had, I believe, a most beneficial influence throughout the country, in causing the various producers of antitoxin to label their preparations in such form as make possible the exact determination of their antitoxin contents. Unfortunately, however, the systematic testing of such preparations cannot well be placed under governmental control in this country, and the public and profession are somewhat at the mercy of the producers.

The Massachusetts State Board of Health has undertaken from time to time to make and publish reports of tests of preparations of antitoxin on sale in Massachusetts, and the Pennsylvania State Board of Health has taken similar action. The New York City Health Department has, also, from time to time tested preparations of anti-

toxin on sale in this city, and where preparations were below the standard marked on the label have notified producers of the fact and warned them to withdraw such preparations from sale in the future.

The action of such a representative journal as the MEDICAL NEWS, in undertaking to make tests of all the preparations largely in use in this country, will have a most salutary influence upon the character of the serum which is being produced. All of the reputable producers, who are anxious to send out serum only of the best quality—of which I am glad to say there are a number in this country—will gladly welcome such investigations, and those who are not reputable, will be forced to discontinue the production of serums of poor quality.

Of course it is not possible to determine with absolute chemical accuracy the strength of preparations of diphtheria antitoxin, and of course it is understood that there is some loss in antitoxic power with time; but the approximate determination of the value of any preparation is simple, well understood, and sufficiently accurate for the purpose required.

Sincerely yours,

HERMANN M. BIGGS.

NEW YORK, December 22, 1896.

THE MEDICAL NEWS ANTITOXIN INVESTIGATION.

To the Editor of THE MEDICAL NEWS.

DEAR SIR: Your report of the experimental investigation into the strength of the different preparations of antitoxin sold in this country is interesting and instructive reading. The medical profession is certainly under great obligation to the NEWS for taking up this question, and I sincerely hope that you are not going to let the matter drop. You have started on a good work; by all means continue it.

I think you are right in saying that what the profession wants is not antitoxin which can be furnished for a low price, but one which is absolutely reliable and that the profession and the public are willing to pay whatever it will cost to produce such an article.

Very truly yours,

L. EMMETT HOLT.

NEW YORK, December 19, 1896.

OUR PHILADELPHIA LETTER.

[From our Special Correspondent.]

MEETING OF THE PATHOLOGICAL SOCIETY.—DR. SKENE OF BROOKLYN READS A PAPER BEFORE THE GYNECOLOGICAL SECTION OF THE COLLEGE OF PHYSICIANS.—MEDICAL DINNERS AND FESTIVITIES, ETC.

PHILADELPHIA, December 19, 1896.

AT the last meeting of the Pathological Society, the specimens presented were so exceptionally interesting that it is a difficult matter to discriminate between them. Dr. H. W. Cattell brought forward a new and rapid method for the preparation of frozen sections, by methyl and ethyl chlorid. The specimen to be cut is prepared as usual and placed on a cork and a stream from a reservoir containing a combination of these drugs, known as anestile, is allowed to play on it from thirty seconds to a minute. As soon as crystals of ice are seen forming on the specimen, it is found to be firmly adherent to the cork, ready for use, and can be cut into sections as desired. The simplicity of the method, together with its rapid action and comparatively small cost, should soon gain a place for it in popular favor.

Dr. J. P. Arnold presented the kidneys from a case of primary interstitial nephritis without arterial change, in a young man. The etiological factor in this case seemed to be the point of especial interest. The kidneys were almost entirely devoid of secreting substance. The interstitial structure being in great preponderance. The usual factors in the production of such a condition were eliminated by the history of the case, the final solution suggested by Dr. Arnold being, that the condition was a congenital one finding its analogy, for instance, in the condition of the thyroid gland in some cases of cretinism. Dr. F. A. Packard reviewed a case of aneurism of the abdominal aorta, showing the specimen and dwelling particularly upon the fact that it had ruptured into the pleural cavity, a very rare occurrence in aneurisms in the locality mentioned. Among other specimens exhibited was one of perforating tuberculous ulcers of the intestine, by Dr. S. Solis-Cohen, who regarded the perforation of the bowel in such cases as a very rare complication of the disease.

At a recent meeting of the Gynecological Section of the College of Physicians Dr. Alexander J. C. Skene read a very able and interesting paper on the diagnosis and treatment of disease of the pelvic viscera in women. Drs. Baldy, Noble, and Howard Kelly discussed it in their usually skilful manner. After the meeting Dr. Skene and the other guests of the evening were tendered a reception at the University Club.

During the last few weeks there have been accounts in the secular press of the investigations ordered by Judge Gordon as to the detention of prisoners presumably insane in the Eastern Penitentiary in this city. The investigation is now being made by the grand jury, and some light may be thrown on the comparative influence and worth of the cellular or solitary confinement system as against the aggregate or commingling method.

This is the season for the interchange of social amenities over the festive board, and numerous have been the banquets and entertainments within the past few weeks. Notable among them was the dinner given to Honorable William Potter, the recently elected President of the Board of Trustees of Jefferson Medical College. Dr. A. K. Minich presided in his own inimitable manner, and toasts were ably and eloquently responded to by Judge S. Gustine Thomson, William Singerly, Esq., Drs. S. Weir Mitchell, J. Chalmers Da Costa, and W. M. L. Coplin. The fiftieth anniversary of the Northern Medical Society of this city was celebrated by a banquet at the Hotel Walton. Dr. Richard H. Townsend, the only one of the charter members of the organization still living, was unable to be present and sent a letter of regret which was read at the meeting.

SPECIAL ARTICLE.

THE USE OF ANTITOXIC SERUM IN THE TREATMENT OF DIPHTHERIA UNDER THE SUPERVISION OF THE NEW YORK CITY HEALTH DEPARTMENT, WITH A RESUME OF THE PUBLISHED REPORTS ON THIS SUBJECT.

BY HERMANN M. BIGGS, M.D.,
OF NEW YORK;
PATHOLOGIST AND DIRECTOR OF THE BACTERIOLOGICAL LABORATORIES, NEW YORK HEALTH DEPARTMENT,
AND
ARTHUR R. GUERARD, M.D.,
OF NEW YORK;
ASSISTANT BACTERIOLOGIST.

(Continued from page 715.)

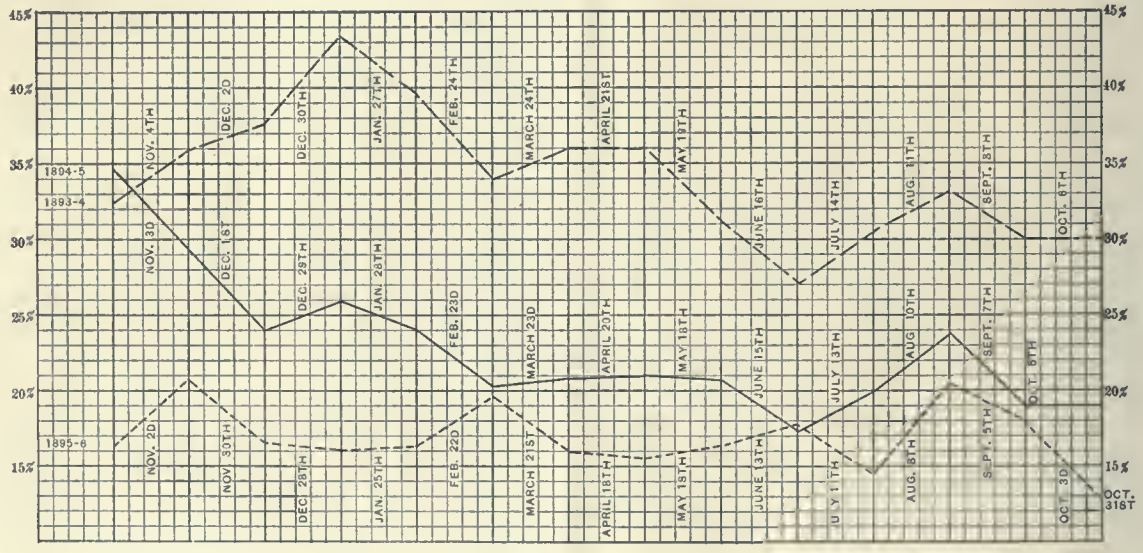
Before considering these figures, and those in other tables relating to New York, it should be stated that antitoxin was first introduced to a very limited extent from abroad in November, 1894. In January, 1895, the distribution and use of the antitoxin produced by the New York Health Department was begun, the amounts used and distributed, of both the foreign and domestic products, increasing gradually until the fall, when a very rapid expansion in the use of antitoxin took place, as indicated by the large increase in its sale, its free distribution to the physicians of the city, and its free administration by the medical inspectors of this Department.

Proceeding now to the consideration of the figures in table 8, we note that the percentage of mortality from diphtheria and croup in 1895 (19.1 per cent.) is much lower than that for any previous year, even when compared with the percentage of mortality from *diphtheria alone*. The lowest rate prior to 1895 is that for 1889, 25.9 per cent., which, for reasons previously given, is certainly too low. It is also to be noted that the decrease in mortality from 1894 to 1895 is considerable, amounting to over thirty-five per cent. of the rate for 1894. In the sixteen years for which the figures are given, the greatest previous increase or decrease in case fatality for any year as compared with that preceding it, is in 1887, when the decrease amounted to twenty-five per cent. of the rate for 1886, or twelve per cent. less than the percentage decrease, 1894 to 1895. But in this year (1887) the decrease in death-rate is accompanied by an increase of 361 in the number of deaths, while in 1895 there is a decrease of 894 in the absolute mortality as compared with that of 1894. This large actual and relative decrease in case fatality in 1895 points to the introduction in this year of some previously non-existent factor.

Proceeding next to a comparison of total cases with total deaths, there is indicated an apparent tendency toward correspondence of deaths and cases as to increase or decrease. To this there are several exceptions, as will be seen by an examination of the figures. From 1890 to 1894, however, with the exception of a small decrease in the number of cases in 1892 as compared with the previous year, there is a steady and rapid increase in both cases and deaths until 1895, when this correspondence is abruptly destroyed, a very large decrease in deaths taking place, while the number of cases is increased by 712, making the total of cases for 1895 the largest ever recorded in the city. The introduction of some disturbing factor, previously non-existent, is thus again strongly indicated.

Chart No. 1[1] gives the case fatality from diphtheria and croup in New York for periods of four weeks, the figures for

CHART NO. 1.



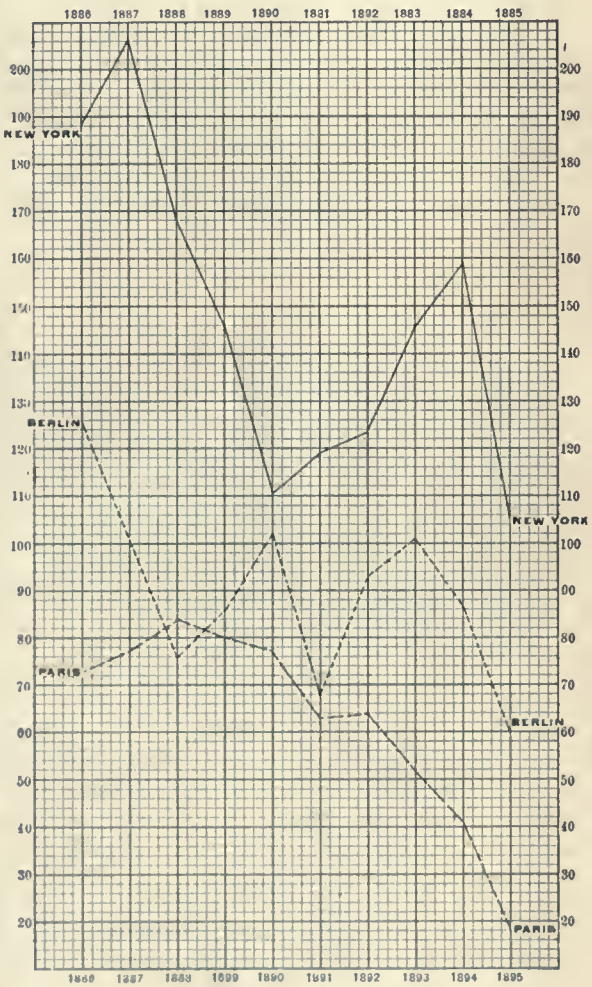
New York. Diphtheria and Croup. Case fatality, periods of four weeks. November, 1893, to October, 1896.

[1] The tables containing the data from which this and subsequent charts presented have been constructed, are omitted for the sake of brevity.

cases and deaths on which it is based being taken from the weekly reports of the Health Department. The method of bacteriological examination in the diagnosis of diphtheria was inaugurated by the Department in May, 1893, and by the autumn of that year had been very generally adopted by the medical profession, and entirely so by this Department through its medical inspectors, as an efficient adjunct to clinical diagnosis. It has been claimed that a considerable increase in reported cases of mild diphtheria, with a consequent decrease in case fatality, results from the extended use of bacteriological examinations in this disease. This claim is not substantiated by a careful comparison, recently made in this office, of the clinical diagnosis with the results of bacteriological examination in cases of suspected diphtheria; but supposing it to be true, any variation in case fatality so produced would in all probability have been relatively the same in the period selected for comparison, previous to the introduction of antitoxin (*i. e.*, November, 1893, to November, 1894), as in the corresponding periods after its use had been begun. The influence of this factor may therefore be almost entirely disregarded. Considering the chart we note, in the year previous to the introduction of antitoxin, an increase of case fatality from 32.3 per cent. in November to a maximum of 43.3 per cent. in January, followed by a decrease to a minimum of 27.1 per cent. in July. With the exception of a slight decrease in October, 1894, the case fatality increases from July to November. At this point, coincident with the introduction of antitoxin, a decrease begins, continuing steadily, with the exception of a slight rise in January, to March, 1895. This is in sharp contrast with the figures for the corresponding period of the previous year. From March to June, 1895, the rate remains practically constant, declining to a minimum of 17.2 per cent. in July. The usual seasonal increase in case fatality then begins, but in October, at which period began the rapid extension in the use of antitoxin previously noted, a decrease begins, which, with the exception of comparatively small increases in November, 1895, and March, 1896, and a somewhat marked rise in August, 1896, has continued to date of writing (November, 1896). The case fatality for October (12.8 per cent.) is the lowest ever recorded for a corresponding period in New York. The rise in August (from 14.4 per cent. for July to 20.6 per cent.) is undoubtedly due, in large measure, to the protracted period of extreme heat, which occurred in the early part of this month, and which produced the highest general mortality recorded in this city for many years. It is interesting to note that the usual seasonal decrease in actual cases and deaths during the late summer and early autumn, followed by an increase on the advent of colder weather, and the opening of the public schools, occurred both before and after the introduction of antitoxin, being apparently uninfluenced by this, and bearing, as a rule, no direct relation to the changes in case fatality recorded.

Chart No. 2 gives the case fatality in diphtheria and croup for periods of four weeks in New York and Paris, and for diphtheria only (croup not separately reported) in Berlin. Cases of croup are not separately reported in the statistics of the latter city. The figures for cases and deaths are taken from weekly reports of the three cities, and for New York correspond with those presented in a portion of chart No. 1. In Paris, antitoxin was in general use in January, 1895, the beginning of the period tabulated, and was largely used in Berlin, while in New York it had just been introduced. The gradual approximation of the case fatality in New York to that in Paris and Berlin is well shown in the chart, and coincides with the increasing use of antitoxin in the former city. In Berlin, climatic influences appear to have but little, if any, effect in increasing or diminishing the number of actual cases and deaths. The effect on case fatality is, however, more apparent, as the lowest rate for 1895 (12.1 per cent.) occurs in July. In Paris, the seasonal variations coincide quite closely with those in New York for 1894, the lowest case fatality and smallest number of deaths occurring in July, and the smallest number of cases in October. The remarkably low case fatality in Paris is of special interest. In July, 1895, it reached the extraordinarily low figure of

CHART NO. 2.



Berlin, Paris, New York. Diphtheria and Croup. Number of deaths per 100,000 of population, 1886–1895.

4.8 per cent., while the highest record-rate (May, 1896) is but 15.9 per cent.

Chart No. 3 gives the number of deaths from diphtheria and croup, per 100,000 of population, in Berlin, Paris, and New York, from 1886 to 1895. In all three cities the ratio of deaths to population is lower in 1895, and the decrease from the ratio of the preceding year greater, than for any previous year, with the exception of Berlin, where the decrease of ratio from 1890 to 1891 is greater than that from 1894 to 1895. In Paris and Berlin, the actual number of deaths, independent of the population, is lower than for any previous year—in Paris most markedly so, less than one-half that of the lowest previous annual mortality (that of 1894), when antitoxin was already in use. In New York the decrease from the ratio of 1894 is in excess of any change in previous years, the decrease being thirty-three per cent. of the ratio of 1894, as compared with a decrease from 1889 to 1890 of twenty-four per cent. of the ratio of 1889, the largest previous change.

Tables 9 and 10 give the deaths from diphtheria and croup, in Paris and Berlin respectively, from January, 1889, to June, 1895, inclusive, by months. The remarkable decrease in mortality in Paris, coincident with the introduction of antitoxin, is well shown, the number of deaths per month falling off rapidly from June, 1894, while the annual mortality for 1895 exhibits a large decrease from previous years, being but forty-four per cent. of that in 1894, which is itself lower than that for any previous year, back to 1886, the figures before this date not being at command. In the week ending September 19, 1896, with eighty-five cases reported during this and the previous week, not a single death occurred from diphtheria or croup in the city of Paris.

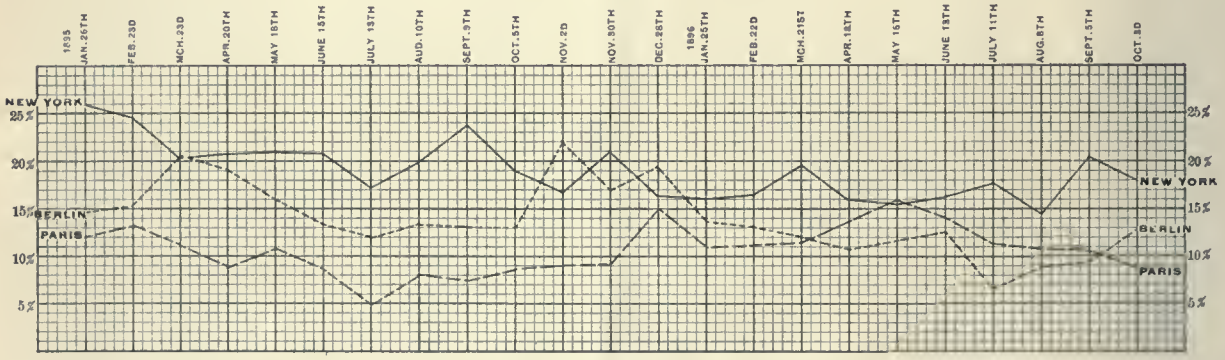
Table 11 gives the case fatality from diphtheria and croup in the Paris hospitals by months, quarters, and years, 1893 to 1895, inclusive, with a portion of 1896. Antitoxin was introduced into some of the hospitals some time in advance of its employment in the city at large (it having been used somewhat during June, July, and August, 1894, and generally, after September). The reduction in case fatality subsequent to its introduction is extraordinary. The lowest rate recorded in 1893 is for October (thirty-seven per cent.), while in 1894, prior to the introduction of antitoxin, the lowest rate is that for February (forty-seven per cent.). As compared with these, the highest rate in 1895 and 1896 is that for December, 1895 (19.7 per cent.). The quarterly and yearly statistics are equally striking. The lowest rate for 1893 and 1894, before the general use of antitoxin, is that for the third quarter of 1894 (forty per cent.), at which time antitoxin was already in use to a considerable extent, while the highest subsequent rate is that for the second quarter of 1896 (seventeen per cent.). For the year 1895, the rate reaches the extraordinarily low figure of 13.6 per cent., as compared with 51.4 per cent. for 1893, 50.3 per cent. for the first three quarters of 1894, and 35.5 per cent. for the year (one-quarter year, antitoxin in use).

Here, as in all other tables presented, the case fatality rapidly decreases with the introduction and increasing use of antitoxin, although in each of the three cities, this took place at a time when the case fatality is normally on the increase with the advent of cold weather.

Table 12 presents statistics for the Berlin hospitals similar to those given for Paris in table 7. They are unfortunately incomplete, no figures for 1894 being at command, and for 1893 the annual figures only. A comparison of the case fatality for 1893 with that for 1895 is, however, entirely confirmatory of the figures previously considered. The rate for 1893 is forty-four per cent.; that for 1895, 15.7 per cent.

Considering as a whole the facts and figures presented above, we observe that a large and rapid decrease in the absolute number of deaths from diphtheria and croup has taken place at certain times in three cities, of varying climatic conditions and different nationalities, in which these diseases are endemic. An extraordinary decrease in the case fatality from these diseases has also occurred, and this fatality has not subsequently risen to any extent in a period of some twenty-two months, and is now, in New York, far lower than at any period in the previous twenty-two years. This decrease did not take place at the same time in each of these cities. It occurred in New York some months later than in Berlin, and in Berlin some months later than in Paris. It has, however, occurred

CHART NO. 3.



New York, Paris. Diphtheria and Croup. Berlin. Diphtheria, only. Case fatality, periods of four weeks. 1895–1896.

in all three cities at a period of the year when, from the history of former years, an increase in the mortality would be expected. The reduction in mortality has occurred in hospital practice as well as throughout the cities at large. It seems evident that some influence, hitherto inoperative, must have come into action to produce the results outlined above. Upon investigation, it appears that all of the results described have followed closely upon the introduction of diphtheria antitoxin, and have become more marked in close coincidence with its increasing use as a remedy for the treatment of diphtheria. The conclusion seems therefore inevitable that we owe to antitoxin the remarkable decrease noted in the mortality from diphtheria and croup.

TABLE XI.—PARIS HOSPITALS: DIPHTHERIA AND CROUP; CASES AND DEATHS, WITH CASE FATALITY, BY MONTHS.

Month.	1893.			1894.			1895.			1896.		
	Cases.	Deaths.	Case Fatality.	Cases.	Deaths.	Case Fatality.	Cases.	Deaths.	Case Fatality.	Cases.	Deaths.	Case Fatality.
January	208	126	60.6	210	128	61.0	286	49	17.1	266	37	13.9
February	143	54	37.7	202	95	47.0	264	40	15.2	278	44	15.9
March	231	119	51.5	232	125	53.9	270	33	12.2	272	30	13.2
April	219	122	55.7	230	117	50.9	264	30	11.4	252	47	18.6
May	147	87	59.2	204	106	52.0	212	25	11.8	230	35	15.0
June	178	95	53.3	115	34	29.6	143	15	10.5	...	..	....
July	120	62	51.7	153	56	36.6	160	18	11.2	...	..	...
August	108	42	38.9	131	49	37.4	138	22	15.9	...	..	....
September	111	55	49.5	151	29	19.2	162	15	9.3	...	..	....
October	108	40	37.0	205	29	14.2	221[1]	26[1]	11.8	...	..	....
November	111	68	61.3	272	35	12.9	235	29	12.3	...	..	....
December	198	98	49.5	350	34	9.7	309	61	19.7	...	..	....
Totals	1882	968	51.4	2355	837	35.5	2664	363	13.6	...	..	....

[1] Monthly reports not available; figures are taken from the weekly reports.

THE SAME, BY QUARTERS AND YEARS.

Quarter.	1893.			1894.			1895.			1896.		
	Cases.	Deaths.	Case Fatality.	Cases.	Deaths.	Case Fatality.	Cases.	Deaths.	Case Fatality.	Cases.	Deaths.	Case Fatality.
First quarter	582	299	51.4	644	348	54.0	820	122	14.9	816	117	14.3
Second quarter	544	304	55.9	549	257	46.8	619	70	11.2	482[1]	82[1]	17.0
Third quarter	339	159	46.9	335	134	40.0	460	55	12.0	...	...	....
Fourth quarter	417	206	49.4	827	98	11.8	765	116	15.3	...	...	....
Year	1882	968	51.4	2355	837	35.5	2664	363	13.6	...	...	....

[1] April and May only.

TABLE XII.—BERLIN HOSPITALS: DIPHTHERIA AND CROUP; CASES AND DEATHS, WITH CASE FATALITY, BY QUARTERS AND YEARS.

Quarter.	1893.			1895.			1896.		
	Cases.	Deaths.	Case Fatality.	Cases.	Deaths.	Case Fatality.	Cases.	Deaths.	Case Fatality.
First quarter	Monthly figures for 1893 are not reported.			737	141	19.1	628	80	12.7
Second quarter				712	73	10.3	472	71	15.0
Third quarter				845	125	14.8	...	..	....
Fourth quarter				850	154	18.1	...	..	....
Year	2570	1132	44.0	3144	493	15.7	...	..	....

(The Berlin hospital statistics for 1894 are not available.)

NOTE.—The case fatalities for both Berlin and Paris hospitals are calculated on the sum of the total cases discharged by death or recovery during each month, quarter, or year. The number of cases admitted during and remaining in hospital at the end of each month, quarter or year is not given in the statistics.

The following *résumé* of the statistics and reports on the antitoxin treatment of diphtheria begins with the first extensive application of the new remedy in the early part of 1894, and brings the subject as nearly as possible up to date (October 1, 1896).

In reviewing the reports which have been published in the various medical journals of the Continent of Europe, Great Britain, and the United States, such a mass of material has been found that it has been no easy matter to sift and condense it in such a way as to make it available for the purpose desired.

Several collective investigations of the antitoxin treatment of diphtheria have already been published in Germany and this country by Heubner, Monti, Eulenberg, Crandall, Foster, Welch, the *Kaiserliches Gesundheitsamt* in Berlin and others; and though in making these investigations the whole field has been carefully gone over, there has been no hesitation in following the paths which others have marked out. Special acknowledgment of obligation for assistance, however, is due to Welch's most admirable article on the subject.

It is hoped that such a compilation of the results obtained by a large number of the best scientific and clinical observers in all parts of the world, from a thorough trial of antitoxin for a period extending over two years, may be of use and interest, not only in demonstrating the value of the remedy, but also in inducing a still more extended application of what may now be confidently affirmed to be a specific against one of the most terrible diseases with which we have to deal.

The first report of experiments made with the blood serum of immunized animals was communicated by Behring and Wernicke to the Seventh International Congress of Hygiene and Demography, held in London, August, 1891. In 1892 these authors published a second article describing more fully the principles of serum-therapy as applied to diphtheria. The earliest report of cases treated with antitoxin was in 1893, and consisted of thirty cases of diphtheria treated by Behring in the Institute for Infectious Diseases in Berlin. At this time the serum employed was very weak in antitoxin, but later, Behring and Ehrlich succeeded in obtaining a stronger serum (though for some time the serum did not have the strength which is now considered to be necessary for curative purposes). In April, 1894, 233 cases of diphtheria treated in the Berlin Hospitals, with a mortality of twenty-three per cent., were reported by Ehrlich, Kossel, and Wassermann. Dr. Otto Katz reported to the Berlin Medical Society on June 27, 1894, the results of the antitoxin treatment of 128 cases from March 14, 1894, in Professor Baginsky's service in the *Kaiser und Kaiserin Friederich Kinder-Krankenhaus* in Berlin. The serum used in these cases was Aronsons' serum obtained from horses. A few weeks later Baginsky reported 163 cases in all with a mortality of 12.9 per cent. Several reports now appeared of similar results obtained during the latter part of 1893 and the first part of 1894.

It remained, however, for Roux to arouse the interest of the world in the discovery which Behring had announced three years before. His masterly address delivered at the Eighth International Congress of Hygiene and Demography held in Budapest, September, 1894, in which he gave a clear and forcible description of his experiments and results in the treatment of 300 cases of diphtheria with antitoxin in the *Hôpital des Enfants Malades* in Paris, really directed the attention of the whole medical profession to this subject, and with this may be said to have begun the first extensive application of the new treatment for diphtheria.

In reviewing the subject of the antitoxin treatment of diphtheria it will be found that its value has been tested chiefly in two ways: the first is by a study of statistics which show the absolute mortality in cities and hospitals before and since the introduction of antitoxin and the comparative mortality of series of cases treated by antitoxin with that of similar series treated previously, or simultaneously, in other ways; the other is by the clinical method, the observation of the effect of antitoxin upon the course of the disease.

All statistics are open to fallacies owing to varying factors and conditions. The age of the patient is a most important factor in determining the mortality in diphtheria, either with or without the use of antitoxin, and unless the age is stated, the statistics are of little value.

Different methods of diagnosis may also lead to errors in the conclusions. The diagnosis of the cases treated by antitoxin has been usually verified by bacteriological examination, whereas in former times the diagnosis was mostly clinical. A bacteriological examination enables us now to exclude from our statistics many cases of angina which would formerly have been included. These cases are less severe than cases of true diphtheria, and on this account the statistics of mortality in the older reports are lower than they should be. On the other hand, a bacteriological examination often enables us to recognize as diphtheria mild cases of angina, which in former days would not have been included in diphtheria statistics. It is not likely, however, that among hospital patients the number in this class is as large as in the other. Experience, moreover, has shown that the cases, which on bacteriological examination have proved to be true diphtheria, when subjected to the former methods of treatment have given the highest mortality.

Another question to be considered is the severity of the epidemic. This not infrequently varies in different times and places. The only way to avoid the fallacy thus arising is to take a large number of cases for comparison occurring in widely separated places and over an extended period of time, and to compare cases treated with and without antitoxin at the same time and in the same place.

Again, it is maintained by some that the low rate of mortality in diphtheria, which has been ascribed by its advocates to the antitoxin treatment, is due to a large increase in the number of cases, a milder type of the disease being now received into the hospitals, owing to the early treatment recommended under the new method, while formerly only the severest cases were brought for treatment. This is possibly true to a certain extent in some hospitals, but it does not account for the great difference in the total mortality between the old and the new treatment; then, too, many cases are now excluded, as all

cases admitted into the hospitals are bacteriologically diagnosed and treated only with antitoxin when found to be true diphtheria, and the remaining cases if not brought for early treatment would frequently have developed into severe or fatal cases.

Regarding the value of the evidence as to the efficacy of the remedy based on clinical study, this, of course, depends upon the confidence we place in the opinions formed by the individual observers. But when the opinions, expressed by many of the best clinical observers in Germany, Austria, France, England, and America, etc., are almost unanimously in favor of it; and when we consider that the majority of these men, if not absolutely opposed to the new treatment, were very timid and cautious in adopting it, and have reached their conclusions only after the most convincing proofs based on practical results, it would seem that there were no longer any reasonable grounds for refusing to accept the opinion of the vast majority.

It remains now to present a series of statistical tables showing the results of the antitoxin treatment up to the present time. The statistics contain all the larger series of cases which have been reported up to date (omitting the statistics of the New York Board of Health, which are given separately), which it has been possible to find in the library of the Academy of Medicine. The list is not complete, as no single or isolated cases have been taken, only series of cases of ten and over. There has been no selection of cases, and no reduplication so far as known, certainly none that could be avoided.

The results obtained by different observers naturally vary somewhat, taken as they are from so many different sources treated under such varying conditions, and with such different preparations of antitoxin, and yet, on the whole, the apparent unanimity is all the more remarkable on this very account, and proves that the total results arrived at are reasonably true and conclusive. Admitting all possible accidental errors which may have arisen—and it is simply preposterous to assume that intentional errors have been committed by scientific observers in every part of the world—the fact remains that in over 24,000 cases of diphtheria treated with antitoxin, which have been reported, the mortality has been apparently reduced by fully fifty per cent.

Summaries of the various tables, prepared from the collected reports follow:

TABLE I.—MORTALITY OF CASES OF DIPHTHERIA TREATED WITH ANTITOXIN AND PREVIOUS OR SIMULTANEOUS PERCENTAGE OF MORTALITY WITHOUT ANTITOXIN.

This table gives the number of cases treated with antitoxin, the number and percentage of deaths, and the previous or simultaneous percentage of mortality without antitoxin, contained in 158 reports of larger series of cases, in hospital and private practice. These cases include not only those which, in the early use of antitoxin, were given insufficient doses, but also the cases which were moribund at the time of the first injection or died within twenty-four hours after it.

In a total of 24,768 cases treated with antitoxin, there were 4004 deaths, or an average mortality of sixteen per cent. The following is a summary of the results obtained in hospital and private practice:

SUMMARY OF TABLE I.

	Cases.	Deaths.	Mortality, per cent.	Previous Mortality, per cent.
In 109 reports from hospital practice	15,560	3009	19.0	30 to 40
In 49 reports from private practice	9208	995	10.1	
Total in 158 reports	24,768	4004	16.0	30 to 40.0

In 109 reports from hospitals, there were 15,560 cases, with 3009 deaths, or a mortality of 19 per cent. with the antitoxin treatment; in 49 reports from private practice, there were 9208 cases, with 995 deaths, or a mortality of 10.1 per cent., or, in a total of 24,768 cases, there were 4004 deaths, a mortality of 16 per cent., as against a previous or simultaneous mortality of 30 to 40 per cent. (taking the lowest figures in the reports) without antitoxin.

It would appear, therefore, according to these reports, that there has been a reduction of mortality in diphtheria, in both hospital and private practice, of at least fifty per cent., as the result of the antitoxin treatment. The lower percentage of mortality in private practice is probably due to the fact that the patients usually come under treatment in an earlier stage of the disease, and are generally more favorable cases.

TABLE II. MORTALITY OF CASES OF DIPHTHERIA TREATED WITH AND WITHOUT ANTITOXIN.

This table gives the number of cases (taking the reports which show these data) treated *with* and *without* antitoxin, and the percentage of mortality. These cases were treated simultaneously or during intervals of forced interruption of the antitoxin treatment, or in the periods immediately before and after the antitoxin treatment.

SUMMARY OF TABLE II.

	Cases.	Deaths.	Mortality, per cent.
Hospital cases with antitoxin	7986	1754	21.0
Hospital cases, without antitoxin	9939	3309	36.4
Private cases, with antitoxin	3161	412	13.0
Private cases, without antitoxin	4255	1717	40.0
Total in 45 reports, with antitoxin	11,147	2169	19.1
Total in 45 reports, without antitoxin	13,294	5026	37.8

From 45 reports in which these cases were recorded it appears that there were 11,147 cases treated *with* antitoxin, resulting in 2169 deaths, or a mortality of 19.1 per cent.; while at the same time, or during the period immediately before or after the antitoxin treatment, there

were 13,294 cases treated *without* antitoxin, with 5026 deaths, or a mortality of 37.8 per cent.

Separating the hospital and private cases there were treated in hospital 7986 cases *with* antitoxin, with a mortality of 21 per cent., as against 9039 cases treated *without* antitoxin, with a mortality of 36.4 per cent. In private practice there were 3161 cases treated *with* antitoxin, resulting in a mortality of 13 per cent., as against 4255 cases treated *without* antitoxin, with a mortality of 40 per cent.

Thus put to the severest test, selecting only the worst cases, as was often done intentionally for purposes of control, and to determine the value of the new remedy (though occasionally it was an unfortunate necessity, owing to the lack of antitoxin, as some reports show, which compelled a forced interruption of the antitoxin treatment) there is still a difference of 50 per cent. in favor of the antitoxin treatment. Surely no effect of climate, or season, or "genius epidemicus," or any of the various theories brought forward by the opponents of antitoxin, can explain the difference in these results. Some other and more powerful factor than any or all of these was evidently at work to produce such a striking contrast in the practical results from two modes of treatment applied at the same time, or under identically the same conditions, by so many different observers.

Some of the details of the most striking of these groups of cases which were treated *with* and *without* antitoxin at the same time, or during intervals of forced interruption, may be tabulated as follows (the full table will be published elsewhere):

TABLE III.

	With Antitoxin.			Without Antitoxin.		
	Cases.	Deaths.	Per cent.	Cases.	Deaths.	Per cent.
1. Hospital d. Enfants Maladies, Paris....	300	78	26.0	....	....	....
2. Hospital Trousseau, Paris	....	....	....	520	316	60.0
3. Hospital Franz Joseph.....	110	14	12.7	144	62	43.0
4. Unterholzner.....	37	8	25.8	36	24	66.0
5. Epidemic, Triest...	321	56	17.1	427	213	50.0
6. Kaiser and Kaiserin Friederich Hospital, Baginsky.....	303	39	13.2	230	70	47.8
7. Vucetig.....	30	2	6.6	30	6	20.0
8. Austrian statistics..	1128	149	13.2	1849	704	38.1
9. Rauchfuss (Russia).	34	7	21.0	30	16	52.0
10. V. Engel.....	39	10	25.5	62	31	50.0
11. Charité Hos., Berlin	299	53	16.7	....	....	....
12. Bethany Hos., B'rlin	....	....	....	249	12	43.1
13. Blumenfeld.....	229	20	8.7	48	11	23.6
Totals	2930	436	14.9	3625	1455	40.0

In a total of 2930 cases treated *with* antitoxin, 436 died, giving a mortality of 14.9 per cent., while of 3625 cases treated *without* antitoxin at the same time, or during intervals of forced interruption (owing to lack of antitoxin) 1455 died, a mortality of 40 per cent.

EXPLANATORY NOTES REGARDING THE STATISTICS IN TABLE NO. III.

Roux reports 300 cases treated with antitoxin in the *Hôpital des Enfants Malades* (1) in Paris with a mortality of 26 per cent, at the same time that 520 cases were treated without antitoxin in the *Hôpital Trousseau* (2) with a mortality of 60 per cent. The previous mortality in these hospitals had been about the same; the time, the type of the disease, every condition was the same, except the mode of treatment, and the resulting mortality.

Ganghofner reports 110 cases treated with antitoxin in the *Franz Josef Clinic* (3) in Prague with a mortality of 12.7 per cent, while during an interval of forced interruption in the same hospital, owing to the supply of antitoxin having run out, 144 cases were treated without antitoxin with a mortality of 43 per cent.

Unterholzner (4) in the *Leopoldstadt Hospital* in Vienna records the results in 37 cases with antitoxin in which the mortality was 25.8 per cent., and 36 cases without antitoxin during an interruption of the antitoxin treatment, in which the mortality was 66 per cent.

During an epidemic of malignant diphtheria in the districts of Triest (5) and Bukowina, the Austrian Health Department sent out a supply of antitoxin to be used among the people. Before the antitoxin arrived the mortality had been fearful in these districts. Three hundred and twenty-one cases were treated with antitoxin with a mortality of 17 per cent. The supply of antitoxin sent was insufficient to furnish the whole section in which the epidemic was raging. Four hundred and twenty-seven cases were treated without antitoxin, and the mortality among these was 50 per cent.

Baginsky (6) records a most striking illustration of the effects of antitoxin in the *Kaiser und Kaiserin Friedrich Kinder-Krankenhaus* in Berlin—a result so striking that it converted Professor Virchow, who, up to that time, had been an opponent of the new treatment. In eight weeks in this hospital 63 cases had been treated with antitoxin with a mortality of less than 13 per cent. Suddenly the supply of serum gave out, as unfortunately the horse from which the serum had been taken died. The old methods were resorted to, and during the next seven weeks, 109 cases were treated without antitoxin with 55 deaths, or a mortality of over 50 per cent. This increase in the mortality induced the hospital authorities to return to the use of the serum. Immediately there was a change. In the next six weeks 84 cases were treated with a mortality of less than 15 per cent. The total figures are given in the table.

In speaking of this remarkable experience Professor Virchow said "All theoretical considerations must give way to the brute force of these figures, and I consider it the duty of every physician to use a remedy giving such clinical results."

Baginsky, in commenting on this circumstance, says: "It is all the more remarkable, as the ratio of mortality of those treated with the serum, before and after the period of interruption varied within very small limits. If one will permit figures to speak at all, there has scarcely been made on human beings a more demon-

strative test of the curative power of a therapeutic agent. It was an experiment forced upon us, but it proved to us how terrible was the form of disease which we were treating, and how numerous would have been the victims without the use of the healing serum."

Professor Virchow again reiterated his opinion in a report which was read on the antitoxin treatment of diphtheria in the same hospital, on December 25, 1895, when he said, that from April to November of that year 303 cases out of 335 treated had recovered, the mortality which had formerly been 43 per cent. having decreased to 9½ per cent.

Vucetig (7) reports two groups of cases of 30 each, one treated with antitoxin and the other with Loeffler's solution; the antitoxin cases gave a mortality of 6.6 per cent., the others a mortality of 20 per cent.

According to the official records of the Austrian Health Department, (8) there were treated during the month of February (1896) in all Austria 1128 cases with antitoxin with a mortality of 13.2 per cent., whereas 1849 cases which were treated without antitoxin at the same time gave a mortality of 38 per cent.

Rauchfuss (9) reports 34 cases treated in hospital with a mortality of 21 per cent., and 30 control cases treated at the same time without antitoxin with a mortality of 52 per cent.

Von Engel (10) in Bohemia reports 39 cases treated with antitoxin with a mortality of 25.5 per cent., and 62 cases treated at the same time without antitoxin with a mortality of 50 per cent. The antitoxin cases, in these reports, are said to have been unusually severe and therefore taken as a test of the new remedy.

Heubner (11) reports 299 cases treated with antitoxin in the *Hôpital Charite* in Berlin with a mortality of 16.7 per cent., and 249 cases treated in the Bethany Hospital (12) at the same time under the same conditions of age, season, etc., without antitoxin with a mortality of 43 per cent.

Blumenfeld (13) reports 229 cases treated in private practice with antitoxin with a mortality of 8.7 per cent., and 48 cases not treated with antitoxin, because they were considered to be *too mild*; the mortality among the "mild cases" was 23.6 per cent. as against 8.7 per cent. among the apparently severer cases treated with antitoxin.

Many examples of the same kind might be cited from the published reports, fuller details of which will be found in the Bulletin of the Health Department, but from these it may be seen that the antitoxin treatment has stood the test of comparison with other approved methods of treatment, whenever the contrast has been decidedly drawn.

KOSSEL'S STATISTICS OF REDUCTION IN THE ABSOLUTE MORTALITY FROM DIPHTHERIA AND CROUP.

It has been maintained by some in criticizing the statistics of the antitoxin treatment, that the reduction of the death-rate, as shown by the mortality percentage, proves nothing, if at the same time there has been an increase in the number of cases reported, as the reduced mortality rate may have been due to the milder character of the cases treated; and that the only convincing figures are those which show, not a reduction of *percentage* mortality, but of *absolute* mortality.

Kossel has undertaken to satisfy this *desideratum* in the following statistics:

I.—In the *Hôpital Charite* in Berlin there were admitted during the years 1886 to 1893–94, an annual average of 146 diphtheria patients, of whom 78, on the average, died; in 1894–95 and 1895–96, 285 were admitted, of whom 40 died. The absolute mortality, therefore, during the serum period (1894–95 and 1895–96) was reduced to one-half of the average for the previous eight years, though the number of cases admitted had increased two-fold.

II.—THERE WERE REPORTED IN ALL THE BERLIN HOSPITALS THE FOLLOWING CASES AND DEATHS FROM DIPHTHERIA DURING THE ELEVEN YEARS, 1885–1896:

Year.	Cases.	Deaths.
1885	1928	789
1886	1738	609
1887	1636	589
1888	1446	523
1889	1623	573
1890	1792	695
1891	1764	623
1892	2074	837
1893	2450	951
1894	2890	801
1895	3061	484

It appears from these statistics that in the Berlin hospitals, as a whole, the deaths have been reduced one-half since the introduction of antitoxin, though the number of cases reported has steadily increased. The statistics for 1896 show a still larger reduction in the absolute and case mortality.

III.—THE FOLLOWING TABLE GIVES THE CASES AND DEATHS REPORTED IN BERLIN AND THE DEATHS IN PARIS (CASES NOT REPORTED PREVIOUS TO 1894) FROM 1886 TO 1896:

Year.	Berlin.		Paris.
	Cases.	Deaths.	Deaths.
1886	6968	1662	1524
1887	5438	1392	1564
1888	4190	1195	1718
1889	4220	1210	1706
1890	4586	1601	1639
1891	3504	1342	1363
1892	3683	1637	1398
1893	4315	1416	1262
1894	5220	1321	993
1895	6106	987	411

According to these figures the mortality from diphtheria rose and fell in Berlin, corresponding more or less closely to the number of cases reported up to the year 1894. In 1894 and 1895 the cases increase in number, while the absolute mortality declines, and in Paris, in 1895, it decreases to less than one-third of the previous average. The statistics for Berlin for 1896 (see previous tables) show an equal reduction. Antitoxin was more lowly introduced there than in Paris.

IV.—THE ABSOLUTE MORTALITY AND DEATHS PER 100,000 POPULATION IN ALL GERMAN CITIES OF OVER 15,000 INHABITANTS, FROM 1886–1895:

Year.	Absolute Mortality.	Deaths per 100,000.
1886	12,211	124
1887	10,970	107
1888	10,142	96
889	11,919	108
890	11,915	105
1891	10,484	84
1892	12,365	97
1893	16,557	130
1894	13,790	101
1895	7611	53

Average from 1886 to 1894, 106.

This table shows a steady rise in absolute mortality up to 1894, when there was a moderate reduction, followed by a very great reduction in 1895, when antitoxin was generally used in the German cities. The sudden fall in the absolute mortality from diphtheria amounts to one-half the average of the previous nine years.

V.—MONOD, THE DIRECTOR OF THE PUBLIC HEALTH DEPARTMENT OF FRANCE, HAS GIVEN THE AVERAGE ABSOLUTE MORTALITY FROM DIPHTHERIA PER MONTH FOR THE FIRST SIX MONTHS OF EACH YEAR FROM 1888 TO 1895, AND FOR 1895, IN ALL FRENCH CITIES OF OVER 20,000 POPULATION:

Month.	1888–1895.	1895.
January	469	205
February	466	187
March	499	155
April	442	160
May	417	113
June	334	84
Totals	2,627	904

The Pasteur Institute in Paris began the distribution of antitoxin in November, 1894. Early in 1895 arrangements were made to furnish antitoxin free to those who were unable to pay for it. In 108 cities of over 20,000 inhabitants, with an aggregate population of 8,150,000, the average number of deaths from diphtheria during the first six months of the seven years, 1888–1895, was 2,627. In the first six months of 1895 the absolute mortality from diphtheria in the same 108 cities was only 904. or a diminution at the rate of 65.6 per cent. The rate of diminution, month by month, went on almost uniformly from one of 56.2 per cent. for the month of January, to 75 per cent. for the month of June.

The use of antitoxin began in Paris and Berlin in the latter part of 1894, and was general in 1895; in New York antitoxin was introduced by the health department in 1895, and is only now becoming generally used.

Taking all these figures together it would seem to have been conclusively proved that, whether we estimate the percentage mortality, or whether we consider the absolute death-rates reported in hospitals or cities as a whole, there has been a marked and sudden reduction in mortality from diphtheria since the introduction of antitoxin. To what else should this be attributed if not to the effects of the antitoxin treatment? It would be a strange coincidence, indeed, which produced by natural causes such a diminution in the death-rate of a disease that had continued unchanged, within slight variation, for many successive years, and then dropped to one-half during the period corresponding to the use of antitoxin, if it were not due to the improved method of treatment.

VI.—FROM STATISTICS TAKEN FROM THE OFFICIAL RECORDS OF BERLIN, PARIS, AND NEW YORK, ON FILE IN THE OFFICES OF THE NEW YORK HEALTH DEPARTMENT, THE FOLLOWING DEATH-RATES FROM DIPHTHERIA AND CROUP, ESTIMATED PER 100,000 POPULATION, ARE GIVEN:

ABSOLUTE DEATH-RATE PER 100,000 POPULATION.

Year.	Berlin.	Paris.	New York.
1886	125.7	73.2	187.5
1887	100.7	76.9	206.6
1888	76.1	83.7	167.7
1889	85.6	79.9	146.2
1890	102.0	77.5	110.6
1891	67.5	63.0	118.7
1892	92.9	63.6	123.3
1893	100.8	51.4	145.5
1894	86.7	40.7	158.5
1895	59.7	17.7	105.2
1896	30.9	17.5	91.3

TABLE IV.—COLLECTIVE INVESTIGATIONS.

This table has been prepared in order to compare the results noted in the present report, with the collective investigations of other observers. It gives the total results reported of the antitoxin treatment, and the previous mortality without antitoxin, in twelve collective investigations, published in Germany, Austria, Japan, and the United States. It is seen, by a comparison of these reports, that each and all of them record almost exactly the same results, *viz.*, that the mortality from diphtheria has apparently been reduced.

TABLE IV.—COLLECTIVE INVESTIGATIONS OF OTHER OBSERVERS OF THE SAME OR SIMILAR CASES TREATED WITH ANTITOXIN, AND PREVIOUSLY, WITHOUT ANTITOXIN.

Reporter.	Treated with Antitoxin			Treated previously or without Antitoxin: Mortality, per cent.
	Cases.	Deaths.	Mortality, per cent.	
Heubner, Berlin	3036	625	20.6	38 to 40.0
Monti, Vienna	3888	716	18.4	.....
Crandall, St. Louis	2632	442	16.8	42.0
Forster, Washington	2740	509	18.5	45.3
Eulenburg and Schwalbe, Berlin	5833	559	9.6	14.7
Welch, Baltimore	7166	1239	17.3	42.0
Kaiserl. Gesundh. Amt. (Berlin):				
First quarter 1895	2228	386	17.3	.....
Second quarter 1895	2130	306	14.3	26.7
Hilbert, Königsberg	7663	1282	16.6	38 to 40.0
Paltauf, Vienna	1207	138	11.3	38 to 40.0
Loddo, Japan	10,000	1800	18.0	44.0
American Ped. Society	5794	713	12.3	.....
Totals	54,317	8715	16.1	30 to 40.0
Present report to October, 1896.	24,768	4004	16.0	30 to 40.0

It would thus appear from this table that twelve different observers, analyzing the same or similar cases treated with antitoxin, have arrived at identically the same result, *viz.*, that the mortality of diphtheria, according to the published reports, has been reduced at least one-half as the effect of the antitoxin treatment; the average mortality for the antitoxin cases being sixteen per cent., including hospital and private practice, and thirty to forty per cent. for the cases treated previously or without antitoxin. There is naturally in this table, in many instances, a reduplication of cases; they are put together merely to show the uniformity of the results of the collective investigations.

There is a reduction of at least one-half, as the effect of the antitoxin treatment, the average mortality for the antitoxin cases being sixteen per cent., including hospital and private practice, and thirty to forty per cent. for the cases treated previously or without antitoxin.

TABLE V.—MORTALITY OF OPERATIVE AND NON-OPERATIVE CASES OF DIPHTHERIA TREATED WITH ANTITOXIN.

One of the most significant effects of the antitoxin treatment of diphtheria, and that which affords the best proof of its value, is shown in the remarkable results, which have been obtained in cases of laryngeal diphtheria with stenosis, which include the severest and most fatal forms of the disease.

This table gives the cases, deaths, and percentage of mortality in operative and non-operative cases of diphtheria treated with antitoxin as compared with the previous or simultaneous mortality in operative cases without antitoxin.

SUMMARY OF TABLE V.

	Total Cases Treated.			Non-operative Cases.			Operative Cases.			
	Cases.	Deaths.	Mortality, per cent.	Cases.	Deaths.	Mortality, per cent.	Cases.	Deaths.	Mortality, per cent.	Previous Mortality, per cent.
Total in 72 reports..	15,148	2626	16.6	12,066	1491	13.5	3082	1135	36.7	70.0

Of the 3082 operative cases 1355 were tracheotomized, resulting in 569 deaths, or a mortality of 42 per cent.; 1173 cases were intubated with 361 deaths, or a mortality of 30.8 per cent.; 52 cases intubated required secondary tracheotomy, of which 37 died, or 71 per cent.; 502 cases required tracheotomy or intubation (it was not stated which) with 168 deaths, or a mortality of 33.2 per cent.

According to a report of 12.736 cases up to 1887 published by Monti, the mortality in tracheotomy previously was 73.3 per cent. Hirsch gives from statistics collected in von Bergmann's clinic the average previous mortality in tracheotomy cases for the last ten years up to July, 1894, at 68.5 per cent. Of 5546 intubation cases collected by McNaughton and Maddren[1] (1892) the previous mortality was 69.5 per cent. Brown has shown since somewhat better results in intubation, *viz.*, a mortality of 51.6 per cent.

[1] Collective Investigation of the American Ped. Soc., July, 1896.

In a total of 15,148 cases treated with antitoxin in this table taken from 72 reports, there were 2626 deaths, or a mortality of 16.6 per cent.; of these 12.066 cases were not operated on, (80 per cent.) of which 1491 died, giving a mortality of 13.5 per cent.; 3082 were operated on, intubation or tracheotomy, of which 1135 died, or 36.7 per cent. Before the antitoxin treatment 40 per cent. of all cases are reported generally as having required operation, and the previous mortality was 70 per cent. for all operated cases, according to the average figures recorded in these reports.

But taking the lowest average recorded at all in any reports, *viz.*, 68.5 per cent. as the previous mortality in tracheotomy cases, and 51.6 per cent as the previous mortality in intubated cases, and the contrast in these figures and those obtained under the antitoxin treatment is sufficiently evident. Here again, in operative cases of the severest forms of the disease the mortality seems to have been reduced by nearly fifty per cent. as the result of the antitoxin treatment; while at the same time the number of cases requiring operative interference has decreased to one-half. This last effect of the serum treatment is due to the fact that many cases of beginning laryngeal stenosis are relieved after injection, without having recourse to operation, few or no cases, which were free of laryngeal obstruction when the antitoxin was injected, being reported as having developed such symptoms later.

TABLE VI.—MORTALITY OF CASES TREATED WITH ANTITOXIN ARRANGED ACCORDING TO AGE.

As age is an important factor in estimating the value of any treatment of diphtheria, these statistics have been collected from all the reports in which the age was mentioned, and arranged in the form of a table. The reports of age mortality, however, have not been uniformly or systematically recorded; but the main features of the table may be summarized as follows:

SUMMARY OF TABLE VI.

Age.	Cases.	Deaths.	Mortality, per cent.
0–2 Years.....	1494	469	31.4
2–5 "	3678	762	20.7
5–10 "	3184	473	14.8
Over 10 Years.....	1444	99	6.9

Comparing these results with those obtained previously or without antitoxin the following have been reported:

Herz: Mortality, per cent.	Hirsch: Mortality, per cent.	Baginsky: Mortality, per cent.
0–1 Year 80.0	0–1 Year.....88.3	0–2 Years.....63.3
1–3 " 45.0	1–3 " 82.5	2–4 " 52.8
3–5 " 40.0	3–4 " 63.9	4–6 " 37.9
5–10 " 17.0	4–5 " 46.9	6–10 " 24.6
Over 10 Years...17.0	6–7 " 43.2	10–15 " 14.6
	Over 7 Years..22.2	

The contrast here shown of the results of treatment *with* or *without* antitoxin, arranged according to age, is sufficiently evident and needs no further comment.

TABLE VII.—MORTALITY OF CASES TREATED WITH ANTITOXIN ARRANGED ACCORDING TO THE DAY OF DISEASE ON WHICH TREATMENT WAS COMMENCED.

Behring claims that the specific curative effect of antitoxin will be the more certainly produced the sooner the treatment is commenced; and that out of 100 cases of *true diphtheria*, which are injected with a curative dose of antitoxin within forty-eight hours from the beginning of the disease, not more than five will die.

In order to test the truth of this statement, and to determine what has actually been effected by the use of the remedy, this table has been prepared, which gives the mortality of cases treated with antitoxin, arranged according to the day of the disease on which the treatment was begun. It is to be understood, as stated in all the reports, that these statistics are based in most cases upon the statements of parents or friends of the patients and may not be absolutely correct as to the exact day of the disease on which the antitoxin was administered, but they give nevertheless an average of the results obtained.

SUMMARY OF TABLE VII.

First and Second Day of Disease.			Third and Fourth Day of Disease.			After the Fourth Day.			Day Unknown.		
Cases.	Deaths.	Mortality, per cent.	Cases.	Deaths.	Mortality, per cent.	Cases.	Deaths.	Mortality, per cent.	Cases.	Deaths.	Mortality, per cent.
4232	267	6.3	3870	656	17.2	1984	685	34.6	339	44	13.0

Or, taking only those reports in which the day of disease on which treatment was commenced is more specifically stated, we have:

	Cases.	Deaths.	Mortality, per cent.
First day of disease.....	1415	51	3.5
Second day of disease....	2640	213	8.0
Third " "	2340	300	12.8
Fourth " "	1458	346	23.6
Fifth day and after.....	1912	671	35.0
Totals.....	9765	1581	16.1

According to these statistics it is apparent that by far the best results are obtained when treatment is commenced early in the disease, if possible within the first forty-eight hours, and not later than the third day; that after the third day the mortality increases rapidly, and that after the fifth day comparatively little benefit is derived from the use of antitoxin, though it should always be administered.

Considering the fact that in all these statistics are included the cases which were moribund at the time of the first injection, or which died within twenty-four hours after, there would seem to be very good reason to believe with Behring, Kossel, Roux, and other observers, that every fresh case of true pharyngeal diphtheria can be cured by the timely administration of an adequate dose of antitoxin, and that the claim, that only five per cent. of the cases injected within the first forty-eight hours of the disease would die, has actually been substantiated.

TABLE VIII.—IMMUNIZATION BY ANTITOXIN.

The question of immunization now comes up for consideration, and though but comparatively few complete statistics on this subject have been published, yet the prophylactive treatment of diphtheria is a matter of so great importance that this table has been prepared to show in how far (according to the reports already published) the administration of immunizing doses of antitoxin has resulted in protecting those exposed to infection. The data are incomplete and unsatisfactory, not only from the fact that many cases immunized have not been reported, but also because many reported as immunized have received insufficient doses of antitoxin; but such as they are the results are interesting as showing the complete protection apparently afforded to many persons exposed to the disease.

SUMMARY OF TABLE VIII.

Number of Cases Immunized.	Number of Antitoxin Units Injected.	Number of those Immunized Attacked Within 30 Days.	Number of those Immunized Attacked After 30 Days.
17,516	50 to 1000 (Average, 150 to 200).	109 mild, 1 fatal.	20 mild, 1 fatal.

According to thirty-five published reports, of which this is a summary, there are 17,516 persons, children and adults, to whom immunizing injections of antitoxin have been given, with the result that, though exposed to infection from diphtheria in families and institutions, and during epidemics when the disease was raging, only 131 of those immunized were attacked later, and of these 129 were mildly affected (109 within thirty days, and 20 after a month), and recovered; while only 2 died of the disease, one within and the other after thirty days from the time of injection. The two fatal cases probably received far too small doses to produce immunity, or the diphtheria was complicated with other diseases not mentioned. The mild cases all recovered, in some a repetition of the injection being given. Only some slight and temporary ill effects are described as having occasionally resulted from the immunizing injections, though in the *Hôpital des Enfants Malades* and the *Hôpital Trousseau* in Paris, and in Löhr's experiments, full curative doses were often given to healthy subjects. Rashes, joint-pains, and other transient effects of the antitoxin serum were occasionally observed, but no serious after effects which could be ascribed to the action of the antitoxin, or which would contra-indicate its use.

The prophylactive dose of antitoxin is now thought by most observers to be from 150 to 500 antitoxin units. The duration of immunity after injection has not been definitely determined, and undoubtedly varies. Some hold the opinion that it lasts only one or two weeks, others

that it extends over thirty days and more. Four weeks may probably be considered as the average duration.

NOTE.—The complete tables, of which these are only the summaries, will shortly be published, with a full report of the cases, in a scientific bulletin of the New York Health Department. They are omitted here, as they are too bulky for such an article.

The statistics given have been collected from reports of series of cases of diphtheria treated with antitoxin, published up to October 1, 1896, in the various medical journals of the world—Germany, France, England, Austria, Italy, Russia, Switzerland, Denmark, Australia, Japan, etc., and America,—accessible in the Library of the New York Academy of Medicine.

CONCLUSIONS.

We desire to bring out strongly and clearly the fact that it matters not from what point of view the subject is regarded, if the evidence now at command is properly weighed, but one conclusion is, or can be reached, whether we consider the percentage of mortality from diphtheria and croup in cities as a whole, or in hospitals, or in private practice; or whether we take the absolute mortality for all the cities of Germany whose population is over 15,000, and all the cities of France whose population is over 20,000 (in France and Germany antitoxin has been more generally employed than elsewhere); or the absolute mortality for New York City, or for the great hospitals in France, Germany, and Austria; or whether we consider only the most fatal cases of diphtheria—the laryngeal and operative cases; or whether we study the question with relation to the day of the disease on which treatment is commenced, or the age of the patient treated; it matters not how the subject is regarded or how it is turned for the purpose of comparison with previous results, the conclusion reached is always the same, namely, there has been an average reduction of mortality from the use of antitoxin in the treatment of diphtheria of not less than fifty per cent., and under the most favorable conditions a reduction to one-quarter, or even less, of the previous death-rate. This has occurred not in one city at one particular time, but in many cities, in different countries, at different seasons of the year, and always in conjunction with the introduction of antitoxic serum, and proportionate to the extent of its use.

Then, finally, there is to be added not only the experimental proof of the specific action of antitoxin in neutralizing the toxin of diphtheria, but also the overwhelming mass of evidence derived from the personal observations of the most distinguished practitioners of medicine of every country. There are to-day, in the whole civilized world not more than three or four active opponents of the antitoxin treatment of diphtheria, whose names were known to the medical profession before the introduction of antitoxin.

It is well to bear in mind the fact, that what is called conservatism in medicine is often only a cloak assumed to cover up indolence. The acceptance of a new principle, or a new fact, involves the expenditure of a certain amount of mental energy. Old ideas and conceptions must be discarded or readjusted to the new information acquired. This involves labor and effort, which some are not willing to expend. They are not willing to go over the data at hand and form conclusions for themselves, but shake their heads wisely, predict a reaction, and plead for conservatism. It is not possible now for any unprejudiced person to master the evidence available regarding the value of antitoxin in the treatment of diphtheria, and reach anything but a positive conclusion.

The deductions to be drawn from a review of these statistics and reports presented would seem to be self-evident and conclusive. The value of antitoxin in diphtheria is no longer a question of opinion or theory, but an established fact. "*Proberin geht ueber studerin*," those who have had the largest experience with the remedy, and have most thoroughly tested its merits, are most in favor of it. The few who oppose it have proved nothing in comparison with the enormous mass of evidence as to its specific value,

It may, therefore, be affirmed that the following facts have been demonstrated:

1. That diphtheria antitoxin, where generally employed, has reduced the mortality from diphtheria at least one-half.

2. That it has a distinctly favorable effect on the clinical course of the disease, shortening it and lessening its severity.

3. That the earlier the treatment is commenced the better the results obtained; the mortality, when adequate doses of antitoxin have been given with the first forty-eight hours of the disease, not exceeding five per cent.

4. That antitoxin is a specific against true diphtheria, (*i. e.*, where the symptoms are due solely to the Klebs-Loeffler bacillus) and is less efficacious in mixed infectious, but even in these forms of diphtheria is of decided benefit.

5. That it is not necessary to wait for a confirmatory bacteriological diagnosis, but that in every clinically suspicious case of membranous angina, especially in children, a medium dose of antitoxin should immediately be given, and repeated if required by the further developments of the case.

6. That antitoxic serum is a remedy without serious after-effects in the doses which have ordinarily been employed (the after-effects, such as rashes, etc., being insignificant in comparison with the danger of the disease); that it has no injurious action on the kidneys, the heart, or the nervous system; that it does not entirely prevent albuminuria, heart failure, and post-diphtheritic paralysis, because the effects of the diphtheritic toxin which has already entered the system before the administration of the remedy, no matter how soon the treatment is begun, are not always completely counteracted by the antitoxin, though there is every reason to believe that in sufficient doses it does prevent any farther extension of the toxic action after its affects have been produced.

7. That the protection conferred by immunizing doses of antitoxin is almost absolute for a short period of time, *e.g.*, three or four weeks, when a sufficient number of antitoxin units is administered, and that with a high grade preparation, where only small quantities of serum are re-

quired, the remedy is absolutely harmless even with the youngest infants.

8. That antitoxin, if not a specific cure for all forms of diphtheria occurring in the human subject, is by far the best remedy for the treatment of the disease.

To the critics of the antitoxin treatment I may repeat the words of a famous German poet, quoted by Professor Soltman:

> "Das ist die richtigste Kritik von der Welt,
> Wenn neben das was ihm missfällt,
> Einer etwas Ergens and Besseres stellt."

Or, in other words:

> "The best critics in the world are they
> Who along with that which they gainsay,
> Suggest another and a better way."

REVIEWS.

A Treatise on Obstetrics. For Students and Practitioners. By Edward P. Davis, A.M., M.D., Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic; Clinical Professor of Obstetrics in the Jefferson Medical College, Philadelphia, Etc., Etc. Illustrated with 217 engravings and 30 plates in colors and monochrome. Lea Brothers & Co., Publishers, Philadelphia and New York. 1896.

The aim of the author in writing this treatise on obstetrics is, as he states, "to furnish to the student a text-book, and to the practitioner a work of reference." Generally speaking, he has attained his object admirably, as far as the practitioner is concerned, for, from a practical standpoint, the work is all that could be desired, being concise, non-theoretical, and written in a style that appeals strongly to the active practitioner; but as a text-book for the student of medicine the book is entirely too advanced. Theories in theoretical midwifery are entirely ignored. There is no descriptive anatomy of the female organs, from an obstetric standpoint, for the benefit of the student, nor is the pelvis considered as a whole. There is no mention of the mechanism of labor, and this, it must be admitted, is the essential sub-subject, the study of which fits one to be a good obstetrician. I fail to note the usual method of approaching the subject of midwifery, so admirably shown in other text-books of this kind, which gradually leads the student up to that point where he can comprehend what is meant by midwifery, and what is expected of the obstetrician.

The book is divided into sections, the first relating to Pregnancy and Labor, the second to the Pathology of Labor, the third to Obstetrical Operations, and the other four to Abortion, Extra-uterine Pregnancy and the Puerperal State, the Infant in Health and Disease, and the Jurisprudence of Obstetrics. The first section treats of pregnancy and labor in a masterly way, and when it has been read there can be no doubt of what the author wishes to impress upon the mind of his reader. Objection can be taken only to that part relating to the differential diagnosis of albuminuria and the toxemia of pregnancy. This difference is well nigh impossible to distinguish, and if it were, is of no practical importance, since the prophylaxis and treatment, both medical and surgical, are the same in both. Then the Walcher position is incorrectly described, it being one of extreme extension, the hips at the edge of the bed or table, and the lower extremities hanging free, and not, as the author describes it, "the thighs extended and allowed to fall downward, resting either on the floor or on a couple of chairs."

The next section comprises an exceptionally complete treatise on the subject of pathology and labor, and includes an excellent description of pelvic deformities, and of the methods of pelvimetry. Stress is laid upon the fact that too much reliance should not be placed upon the pelvimetric measurements in deciding upon the period of inducing labor; it is more wise to rely upon the adaptability of the fetal head to the pelvic inlet, and if, by suprapubic pressure engagement fails to occur in cases of relative or absolute pelvic contraction, he deems it expedient to bring about delivery. The subject of accidental hemorrhage is exhaustively treated here, as well as elsewhere in the book.

The chapter on Forceps is the best in the book, and follows the most recent teaching. Axis-traction in appropriate cases is generally advised, but not by the ordinary axis-traction instruments, the more complicated adjustment of tapes, through fenestræ of the blades, being preferred. The illustrations accompanying this chapter are remarkably good, the photographs having evidently been taken at the bedside. The plate showing the application of the forceps high up in the pelvis, however, is not to be commended, as it shows the forceps guided by two fingers only, whereas the whole hand should be introduced into the vagina. There is no reason why ether should be recommended in forceps operations, and chloroform in versions. A typographical error appears on page 330; "cervix" should read "vertex."

The chapters on Version, Symphysiotomy, and Celiohysterectomy are admirable, and must be read in order to be appreciated.

Abortion, Extra-uterine Pregnancy, and the Puerperal State comprise the next section. It is a mistake to introduce a description of gynecological operations in a book on midwifery, for, though dependent upon obstetrics, they are fully treated of in works devoted to this branch. It is questionable, too, if the chapters devoted to the Infant in Health and Disease were wisely added. The duties of the *accoucheur* proper cease when the puerperal period ends, and this subject rightly belongs to a treatise on the diseases of children, rather than to one on obstetrics.

It is a surprise and gratification, however, to read the section devoted to the Jurisprudence of Obstetrics, and the author has shown excellent judgment in including it in his book. This branch has been greatly neglected by other writers, and he is to be congratulated upon having brought his labors to a close in such a masterful fashion.

Whatever unfavorable criticism is made of Dr. Davis' book in this instance is completely overshadowed by the genuine worth of his effort to give to the medical profession a thoroughly scientific and brilliant treatise on obstetrics. No one is infallible, and, even though the author were, the reviewer cannot always agree with his expressed views.

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